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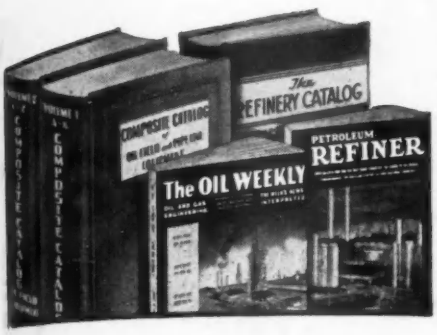

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LOOKING AHEAD
... with the Editor

MANY an operator has learned to his grief that the pictures taken by the gravity meter are misleading unless expertly interpreted, and sometimes then. The instrument may be broadly defined as a camera which takes out-of-focus photographs of geologic structures.

The picture itself may be compared with that of a distant landscape taken by an improperly adjusted camera, or the visual impression perceived by a nearsighted person looking at a distant object.

Very little seems to have been accomplished so far in interpretation technique to sharpen the gravity meter picture so that it will appear in its true relief.

Following gravity surveys, leases are taken and wells drilled on noses and other seemingly anolamous regions because production of oil and gas occurred in the vicinty under similar conditions.

Actually it is known that if a closed structure is present, it is often shifted horizontally away from the gravity meter high and more particularly if the regional gravity gradient is large. In some cases a structural low or syncline may be found immediately below a gravity high as may be the case where several closely spaced salt domes are present.

Interpretation of gravity meter surveys will be discussed and illustrated in an early issue, by Sylvain J. Pirson, of the Department of Petroleum and Natural Gas, The Pennsylvania State College.

THE OIL WEEKLY

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Contents • April 2, 1945
Volume 117, No. 5

The Changing Panorama 21

Technical and Feature Articles:

Resources and Resourcefulness 34
By IRA H. CRAM

Water Flooding in Oklahoma 40
By DAVID M. LOGAN

District 3 Fields Exceed Maximum Efficient Rate 50

Auto Ignition Converted for Gas Engines 52

Variable-Width Roller Support Speeds Shop Welding Jobs 54

Guy-Line Anchoring for Town-Lot Servicing 58

Operating Hints for Production Men 62

News and Departments:

Looking Ahead 17
The Lookout 19
The Week's News 25
Market Trends 65
Pipe Line News 66
International News 69
Field Operations 71
Exploratory Completions 88
Wildcat Starts 89
Men in the Industry News 92
Squeaks from the Bull Wheel 91
New Equipment Notes 94
Index to Advertisers 96

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The Lookout

Congress will take quick and favorable action legalizing the option for treating intangible drilling costs. The powerful House Ways and Means Committee has always supported the industry against efforts by the Treasury to outlaw both the option and percentage depletion.

Chances of fulfilling the stiff 1945 drilling program grow dimmer, as do prospects of meeting oil production requirements before year's end. Just as a new high was registered for U. S. oil production (4,793,000 barrels daily for week ended March 24) with further peaks presaged by larger April allowables, comes a deterrent in the Circuit Court's ruling on drilling costs. One company's new starts dropped last week from an average of more than 20 to less than a half dozen and, in addition, several wells previously started were cancelled. Meanwhile military needs mount, court decision or no.

Defeat of Germany will not result in any immediate extensive relaxation of controls on materials or production or easing of rationing. This will come gradually, and not reach sizeable proportions for six months. Administration plans for reconversion after V-E day may be revealed by War Mobilization Director Byrnes in his report to Congress a few days hence. However, larger steel allotments will not mean immediate gain in available equipment. It will take another six months for manufacturers to process much raw steel into machinery.

Undoubtedly, oil has excellent chance of getting more steel when it becomes available. Oil's relief from matrial shortage may be limited, however, because bombs and rockets, made in the same mills as tubular goods, will play increasingly important role against the Japs. There may not be enough mill capacity to make plenty of both.

Congress will vote extension of reciprocal trade agreements act, but quite likely not in form sought by the Administration. Strong opposition will be offered to plans for a new 50 percent cut in import tariff rates. Several industries, fearing postwar competition, among these oil, will seek to be excluded from "tradable" commodities on ground that imports force domestic prices down and threaten living standards of workers. (See page 28).

The House Judiciary Committee will investigate the tidelands situation, and is expected to support legislation relinquishing federal claim to ownership of offshore oil deposits. Some years ago it helped kill legislation aimed at Federal seizure of coastal lands claimed by the states.

Joint chiefs of staff who on March 27 slashed by 75 percent a billion-dollar warship building program that was announced only March 6, are understood to be questioning the Maritime Commission on whether some 40 new tankers planned for 1945-46 delivery will actually be needed.

Substantial increase in Texas taxes are likely. The House Revenue and Taxation Committee says it will not pass out bills for more taxes unless necessary but if legislative appropriations continue to increase, it will be necessary.

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The Changing Panorama

YOUR Role in the Drilling Cost Fight

FEW events have raised as spontaneous protest from oil men as has the court ruling that may deprive the industry of the right to deduct intangible drilling costs from income taxes. Without exception it has been termed one of the most serious blows in the industry's history, one which would crush many small and medium-sized units and which would adversely affect the nation's ability to produce crude oil.

It is well for oil men to be concerned. But, in view of the seriousness of the situation and the need for a remedy, oil men must do more than denounce among themselves the possible effects of the ruling. Steps must be taken to counteract the decision either by another court ruling or through proper federal legislation. Fortunately, the industry has leaders who are organizing to take prompt action. (See page 25 for details of plans.)

However, these leaders must not be expected to shoulder all the burden. They need the support of all those who see the ruling as harmful to the United States petroleum industry and the security of the nation. To make the effort more effective, oil men should immediately get behind the move.

The bill introduced by Representative Reed, and other similar proposals, appear sound. They afford the industry an immediate opportunity to get legislative action. The chances of getting a bill passed which will establish deduction of intangible drilling costs as a definite part of the Revenue Act would be materially enhanced *if operators will communicate directly with their own Congressmen. Such supplemental communications as may seem proper might be directed to members of the House Ways and Means Committee,* which group has jurisdiction over legislation of this nature. *It would be helpful if copies of all communications were sent to the industry's General Depletion Committee,* since this group is coordinating the industry's drilling tax activities. These may be addressed to J. C. Hunter, Mid-Continent Oil & Gas Association, 912 Investment Building, Washington, D. C., or to Russell B. Brown, Independent Petroleum Association, 500 Investment Building, Washington, D. C.

Creation of the position of manager of farm sales by the Standard Oil Company of New Jersey recently, is another indication of the interest which oil companies are showing in farms and farmers. Agriculture has become progressively a wider market for petroleum products until now it is a major outlet and promises still further profitable utilization.

Japan and Its Oil Supply Problem

JAPAN has not yet suffered extremely heavy losses of her oil supplies, as is the case with Germany. But Japan is beginning to receive a warning of what is likely to befall her oil sources.

Since late January, East Indies and homeland refineries have been subjected to their first major air attacks. These have grown and will grow steadily in frequency and severity. More recently Japan's oil supply problems have been further increased by the Burmese and Philippine conquests. Little, if any, Burma oil now is available to Japan. The Philippine campaign exposes the East Indies oil fields to comparatively easy conquest whenever military leaders choose, and meanwhile it has placed American forces in a position to hinder if not almost stop shipments northward to Japanese forces.

☆

We need to bring in a new 30-million-barrel oil field every six days to keep pace with present rate of withdrawal.
—From hearing before House Committee on Small Business.

Commerce Through Modernized Treaties

PROTECTION of foreign trade operations by establishing a series of modernized treaties of friendship and commerce is a basis upon which the International Court of Justice proposed at Dumbarton Oaks could reach its decisions, in the opinion of Austin T. Foster, counsel of Socony-Vacuum Oil Company.

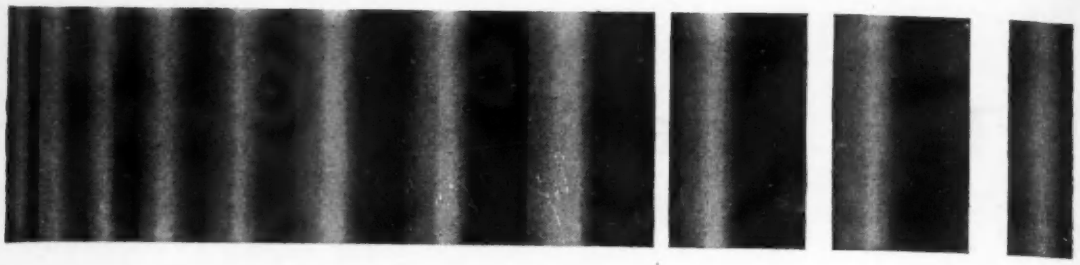
As chairman of the committee on treaties of friendship and commerce of the National Foreign Trade Council, he believes existing treaties of friendship and commerce are now frequently inadequate in varying degrees because of the swiftness with which conditions have changed in recent years.

"From the American viewpoint," he says, "it is of vital importance to the expansion of foreign trade and international investment that the fullest possible measure of protection by treaty be afforded businessmen engaged in these international activities.

"It is not to be expected if properties are to be expropriated or discriminatory practices followed that a program of American investments can be long maintained. It is suggested that treaties of friendship and commerce, in addition to giving assurance against uncompensated expropriation, might also define those industries in which governments may operate and in which nationals may be given any degree of preference so that investment plans in regard to other types of industry can be made and carried out by free private enterprise with some degree of security."

East Texas Pressure

THE addition of one more producing day per month to the operating schedule of the East Texas field is not causing reservoir pressure damage, as some feared it would. According to figures of the Texas Railroad Commission, in contrast with a downward pressure trend during the preceding six months, the bottom hole pressure of the field rose 3.35 pounds during February, the first full month during which the field produced 24 instead of 23 days.



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Telling the World Of Oil's War Effort

"UNSTINTED Praise Is Due . . ." is the title of an institutional advertisement which the Socony-Vacuum Oil Company is placing in three national weekly magazines.

The ad quotes from a special report submitted by a sub-committee of the Committee on International and Foreign Commerce of the House of Representatives, which praises the petroleum industry for its excellent record in meeting military and civilian needs.

The industry has certainly done a job thus far in the war effort which deserves the highest commendation. Making the American public familiar with how well the industry has met its obligation in providing oil for the war and also the home front, is a public-relations effort of first-rate importance. Socony-Vacuum is to be complimented for its initiative in publicizing the report on behalf of the whole industry.

Ready for the Change

THIS week THE OIL WEEKLY comes to you with new divisional headings, a new feature and a new style of presenting the news.

While at first thought there may seem to be no connection between the magazine's new "Easter dress" and its contents, actually there are interlocking innovations. They are a step toward greater readability and simplicity for busy readers; they also represent a new effort to strike through the veil of bureaucratic red tape and international double talk to reveal the significance and meaning of events in clear, pithy fashion.

The new feature is *The Lookout*. In sentences stripped of fat, The Lookout will chronicle today what is likely to happen tomorrow.

The Week's News is a new heading for an old feature, given a new style of presentation. The aim is for analysis and interpretation of events rather than mere presentation of the news itself. Greater coverage will result on items worthy of expansion (example, last week's handling of Washington angles of the Fifth Circuit Court's drilling costs decision) but reduced coverage is planned on news stories, already circulated by press associations, which normally are out-dated by the time subscribers get their copy of THE OIL WEEKLY.

Along with the interpretative method of presenting the news, the magazine's news section breaks out of the confines of its *Washington Roundup* heading and becomes world-wide in scope. This change recognizes that a government order in Iraq or Saudi Arabia may have profound implications in the United States. Washington still remains the fountainhead of world oil news, and as long as this is true THE OIL WEEKLY will continue to stress news from Washington. But as events march on and Capitol bureaus wither on the vine, Washington will play a less dominant role.

THE OIL WEEKLY is ready for this change.

Expert Service by Survey Meets Need

RECOGNIZING the need for stimulating secondary-recovery methods in the oil industry, the United States Geological Survey has undertaken an important program which should be of great assistance to the average oil operator. Because of the lag in new and important discoveries and the increasing need for petroleum the question of saving vast reserves of oil through secondary-recovery methods which otherwise would be lost is receiving increasing consideration.

A supplemental appropriation to the oil and gas leasing division of the survey which was voted some time ago, has made it possible for this organization to study and prepare reports on areas which are likely to benefit from secondary-recovery methods. It is recognized that there are many areas in the country which merit special study but in most instances independent producers, especially the small ones, are financially unable to employ the services of petroleum engineers specializing in secondary-recovery methods. Such engineering firms as do specialize in this branch of production are snowed under with work. Consequently many fields, depleted through primary production methods, are likely to be abandoned and millions of barrels of oil lost forever.

The special secondary-recovery program of the Geological Survey is designed to avert such losses as far as possible by furnishing reports on promising areas. One of the first such projects has been completed by the Tulsa office of the Survey and is a complete study of the secondary-recovery possibilities in the old Hogshooter oil pool of Washington County, near Bartlesville, Oklahoma, where it is estimated only about 10 percent of the original oil in place has been recovered through primary methods.

It is essential that any successful secondary-recovery project should be preceded by a petroleum engineering study. The principal purpose of the Hogshooter and other field studies is to review conditions under which early production was effected and to call attention of the oil industry to the areas deemed most fovarable for secondary-recovery projects and to act as a guide.

Other secondary-recovery studies being made by the Geological Survey include the Nowata-Claggett area and the Delaware-Childers area of Northeastern Oklahoma and the Buena Vista Front pool in Kern County, California.

☆

What a man earns by thought, study and care, is as much his own, as what he obtains by his hands.

—DANIEL WEBSTER,
in arguing the case of Goodyear's claim to vulcanization of rubber.

State Barriers Restricting Trade

REMOVAL and reduction of present highway barriers in the form of taxes, fees, licenses, etc. are necessary if the nation is to enjoy the full benefits of free trade as envisioned by the framers of the constitution. All such barriers, regardless of their intent or the means by which it is attempted to justify them, are bad, in the opinion of Representative Sam Hobbs, of Alabama. "They restrict trade and commerce," he said recently in a speech before Congress, on the "High Cost of Highway Barriers." They add unjustifiable costs to goods, commodities and services.

Some form of trade barrier exists in practically every state in the Union. Statutes on the subject number over 1000. They are all restrictive measures and literally result in retaliation, boycotts, border wars and bitterness.

Most of these restrictions are in violation of the constitution, Hobbs thinks. For this reason he believes that "all our people should be acquainted with the ill effects of trade barriers. All manufacturers, retailers, taxpayers and consumer groups should see to it that barriers lifted during the war shall not be replaced and that current barriers be removed."

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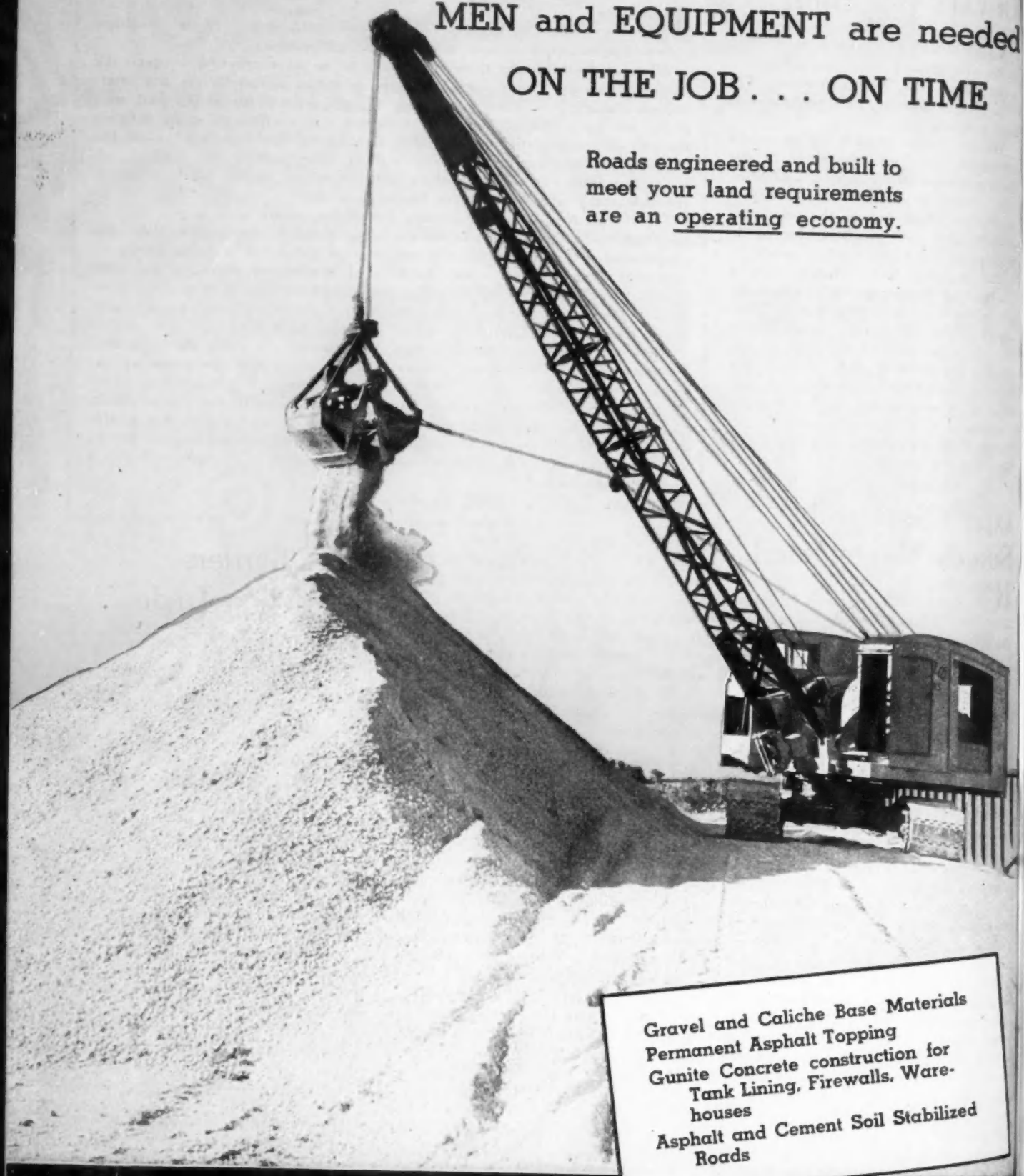

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The Week's News

FPC Postpones Gas Hearing—To give state authorities more time in which to prepare for presentation of their views, the Federal Power Commission postponed hearings relating to its investigation of natural gas, due to open at Kansas City May 1, and will not get them under way until late summer or early fall.

Reciprocal Trade Extension—President Roosevelt made known his support of legislation extending the life of the Reciprocal Trade Agreement Act and permitting upwards of 50 percent cut in duties halved in trade pacts already made, under which the import tax on oil, originally 21 cents per barrel and reduced to 10.5 cents under the treaty with Venezuela, might be cut to 5.25 cents in some further agreement.

Drilling Cost Tax Legislation—Members of Congress paved the way for a drive to have the option on intangible drilling costs written into the Internal Revenue Code, introducing bills on which an early hearing will be sought by the House Ways and Means Committee. The Internal Revenue Department announced it will rule as in the past until final decision is reached.

Antitrust Section of Oil Pact—Revision of the Anglo-American petroleum agreement will be completed shortly with the drafting of an antitrust provision which, however, has yet to be accepted by the Department of Justice.

Manpower and the Draft—Manpower reports on industry personnel are coming into PAW slowly and are retarding the agency's presentation of its case for an increase in deferments of men in the 18-29 age group beyond the 30 percent provided under the new Selective Service procedure, but initial steps have been taken to acquaint the Byrnes committee with the need of the oil industry for additional protection against the loss of young key men.

AAPG Holds Convention—Fifty delegates from the 4300 membership attended the AAPG convention in Tulsa last week. M. G. Cheney of Coleman, Texas, is the new president. Wallace E. Pratt was awarded the Sidney Powers Memorial Medal and William E. Wallace, Jr., of Shreveport, received the president's award. Retiring President Ira Cram's address, page 34.

Suggests Committee on Manpower—George E. Dewey, PAW manpower counselor, says after a nationwide survey that the oil industry had better go into an intensive recruitment program instead of depending upon prewar methods plus hope for wholesale draft deferments. He suggests an advisory committee to study the problem, make suggestions.

Oil Scouts Elect—At their convention in Dallas last week H. F. (Tax) King of Ardmore, Oklahoma, was named president of National Oil Scouts and Landmen's Association.

Canol Abandonment and Salvage—The question of how much can be salvaged from the much-publicized Canol adventure is uppermost this week as the Army carries out its plan to abandon the project. Whitehorse workers are being sent to critical refinery jobs.

Carbon Black Expansion—Grave need for carbon black, most critical material in the nation's rubber program, has brought about plans to produce an additional 188,100,000 pounds yearly. Facilities costing more than $11 millions have been given preferred construction priorities.

Tankers and the Argentine—Military needs have caused further shifting of tankers from the Gulf Coast-East Coast run. Argentina's coming into the United Nation's fold and that nation's need for petroleum exports presents a new demand for oil tankers.

Revised Texas Conservation Bill—Hearing has been set April 5 by the House of Representatives Oil and Gas Committee on the revised Texas gas conservation measure. Apparently the support of all interests has been obtained by certain changes announced since the original substitute (THE OIL WEEKLY, March 19) was announced.

Texas Condensate Measure—The corrective condensate tax measure will be considered in the Texas House of Representatives April 2.

Pacific Coast API Meet—B. P. Kantzer was named chairman of the Pacific Coast API division of production at its wartime conference in Los Angeles March 29. PAW's Ralph Davies and API's William Boyd were principal speakers. Technical papers were presented. (See page 31.)

Tank Car Speed-Up—Determined to keep users of tank cars on their toes, the Office of Defense Transportation has ordered continued until June 1 the high penalty demurrage charges adopted January 22 and scheduled to expire March 31.

Industry Unifies Efforts Seeking to Invalidate Circuit Court Ruling

The oil industry will not await the final outcome of the F. H. E. Oil Company case to settle the validity of the present option on intangible drilling costs, but will seek prompt legislative action in Congress to write the option in the statutes, and thus settle the question definitely and permanently.

Industry representatives have taken the position that the question must be settled by Congress or the Treasury will attack repeatedly in the courts, with the possibility that at some time the government might get a Supreme Court decision invalidating the option which the department has tried unsuccessfully to have Congress wipe out.

However, court action will not be neglected. In addition to the legislative effort, the industry also will take steps to assist in obtaining a rehearing of the case so that briefs might be filed. Last week, the Fifth Circuit Court of Appeals granted an additional 15 days for filing application for rehearing, which means the industry has until April 10 to file its petition. This additional time, of course, is very welcome.

The General Depletion Committee will head-up the industry's efforts on the matter. This committee comprises representatives of every oil trade association, and therefore seems best qualified to coordinate activities. Judge J. C. Hunter, president of the General Mid-Continent Oil & Gas Association, 912 Investment Building, Washington, and Russell B. Brown, general counsel for the Independent Petroleum Association of America, 500 Investment Building, Washington, are co-chairmen. It has been suggested that it would be helpful if all inquiries, suggestions, copies of communications to Congressmen, and other matters relating to the subject were directed to the co-chairmen.

Meanwhile, the industry has been encouraged by action on the legislative front. Legislation amending the Internal Revenue Code to provide specifically for the option to deduct intangible drilling costs as expense or charge them to capital account already has been introduced by Representative Daniel A. Reed of New York (THE OIL WEEKLY, March 26, 1945), and Congressman William G. Stigler of Oklahoma. Other bills have been prepared for introduction, among them bills by Representa-

tives Victor Wichersham of Oklahoma, and Frank Carlson of Kansas.

The promptness with which legislation has been introduced into Congress specifically to incorporate the intangible drilling cost option into the Revenue Code has raised hopes of oil men that the situation may be clarified more quickly than at first anticipated. Further encouragement has come from the fact that the first bill actually introduced was by Reed, who is the second ranking minority member of the Ways and Means Committee, which has jurisdiction over such legislation. Reed's position may result in the measure's receiving earlier committee consideration, which would improve chances of getting the bill without delay to the floor of Congress. Carlson also is a member of this committee.

The industry was further encouraged by the number of bills introduced or proposed, and that all seem generally sound in principle. All so far submitted are identical and provide for incorporation in the code of a provision that all expenditures for wages, fuel, repairs, hauling, supplies, and so forth, incident and necessary for the drilling of wells and the preparation of wells for production of oil or gas may, at the option of the taxpayer, be deducted from gross income as an expense or charged to capital account. In addition, operators are given the same option for non-productive wells. The amendement would be made retroactive to January 1, 1938.

Efforts of the industry unquestionably will be to give full support to the Reed bill or other similar proposals. The General Depletion Committee will meet in St. Louis on April 4 for the purpose of discussing such legislative proposals, in the hopes of finding one that can be supported by the entire industry. Efforts in the courts also will be considered at this meeting.

Meanwhile, the Internal Revenue Bureau is not expected to act in accordance with the recent decision of the Fifth Circuit Court of Appeals until the case is finally decided by the Supreme Court.

The industry's Production Committee for District 3 has forwarded a resolution to Petroleum Administrator Harold Ickes which condemns the court ruling, and asks him to intervene in behalf of the petroleum industry because of the vital necessity of drilling wells to maintain oil production at high enough levels to satisfy war needs.

Reed Explains Purposes

Representative Reed later amended his bill to make it clear that it is designed to overcome the Circuit Court decision but not intended to give operators a new election. The legislation, he told the House March 29, is "merely to validate the option which has been granted under the regulations of the Treasury Department for the past 25 years."

Reed explained further that his original bill applied only to taxable years beginning after December 31, 1937, but since there may be some cases open, either for assessment or refund, for years prior to 1938 he has added a new provision which has the effect of validating deductions taken for such optional expenditures under the regulations in force in those prior years.

Meanwhile the industry was assured that the Internal Revenue Bureau will not rush things, but will continue to operate as in the past until the case is settled finally.

This was made clear by Commissioner Joseph D. Nunan, Jr., now a practicing lawyer in Washington with oil industry clients, in response to any inquiry as to the bureau's intentions.

"The bureau," Nunan wrote, "proposes to follow the provisions of Section 29.23 (M)-16 of Regulations 111 and corresponding provisions of prior regulations notwithstanding the decision in case of the F. H. E. Oil Company. In the event of a clarification of the law impelling such a change, in no event would such a change be retroactive unless so directed by Congress."

During the week, the matter was carried to the floor of the House by Representatives Reed of New York, Carlson of Kansas and Domengeaux of Louisiana.

All three members told the House that, if permitted to stand, the decision will paralyze oil production throughout the country.

First of Long Drawn-Out FPC Gas Hearings Is Postponed for Months

Demands from state authorities for more time in which to prepare data regarding natural gas reserves, conservation practices, utilization and other related matters have influenced the Federal Power Commission to postpone hearings on its investigation of natural gas which were scheduled to open in Kansas City May 1.

Commission officials said the hearings now will not begin until late summer or early autumn.

Strongest objections to the May 1 hearing came from the conservation authorities of Kansas, Louisiana and New Mexico, who were represented as having extensive studies in course of preparation for presentation during the hearings.

Postponement of the hearings may have an important effect upon the course of the investigation, for by the time they open some months hence Germany may have been knocked out of the war and reconversion of industry may have been started, leading to changes in demands for natural gas.

Meanwhile, it has become apparent that the FPC investigation will be a long drawn-out affair, with final results probably not to develop for a year or more.

In addition to the authorities of the states from which the gas is procured, requests for opportunity to testify have come in from companies distributing natural gas, officials of consuming areas, industrial consumers, competing fuels and rail and water interests.

The inquiry is seen as developing in detail the effect of continued expansion of natural gas consumption upon the oil and coal industries, the railroads and barge lines, as well as bringing out information on the main objectives, the extent of the Nation's gas reserves and their anticipated life, conservation practices and policies, and related questions.

The tremendous expansion of natural gas facilities to insure adequate supplies to the Appalachian region and pending applications for the export of gas to Mexico and Canada will bring the commission squarely up against the growing reluctance of some authorities of the producing states to the unrestricted export of their gas.

This problem already has been raised, notably in Texas and Louisiana, where opinon is divided over the possible depletion of reserves in a comparatively short period if gas is pumped out at a steadily accelerating rate.

These fears are intensified by the very existence of the government's two big pipelines which, after the war, may be abandoned as oil carriers and become available for conversion into gas lines. The pipe lines also are feared by the coal industry, which sees a possible invasion of its most important markets.

There is considerable sentiment for having the whole inquiry shelved until after the war, when many believe a return to civilian industry will reduce the demand for gas and, to considerable extent, dispose of the whole problem. The commission, however, is determined to go ahead with the investigation as rapidly as possible.

These hearings also are emphasizing the quarrel for jurisdiction between state and federal authorities. Some see in the investigations a move on FPC's part to further governmental control. Doubt has been expressed in some quarters that the commission has authority even to call such hearings.

Antitrust Section of Pact Believed About Formulated

Final drafting of the anti-trust provision which is to be incorporated in the revised Anglo-American petroleum agreement is expected to be completed within the next few days, and the finished document may be ready for a final preview by the Senate Foreign Relations Committee in the near future.

The draft is still in the hands of the legal experts of the Department of State and has not yet been submitted to the Attorney General. Indications, however, are that the Justice Department will raise no objections to stipulating that members of the industry shall not be subject to anti-trust prosecutions for joint action taken to carry out recommendations thereunder by the government.

The President's Cabinet committee has had several meetings and State Department officials, originally opposed to granting any immunity, are understood to have given ground. Members of the Foreign Relations Committee believe that the industry should be given this protection, and officials of the several

departments represented on the Cabinet committee concur.

Once the revision has been worked, new conferences with British representatives will be sought. Changes which have been made in conformity with PIWC national oil policy committee views will raise no questions difficult of settlement in those negotiations.

El Paso Natural Is Given Permit to Take More Gas

Plans of El Paso Natural Gas Company to increase its receipt of wasted residue gas in Lea County, New Mexico, from 76 to 96 million cubic feet per day were given the approval of the Federal Power Commission last week, permitting conservation of 20 million cubic feet daily of gas the company is now withdrawing from its reserves.

The project calls for construction of 31.5 miles of 16-inch pipe line from its Eunice compressor station to Jal Plant No. 1, the construction of five 800-horsepower gas compressor units, two 175-kilowatt gas-engine-driven generators and two 24-inch scrubbing towers of 13 million cubic feet daily capacity at the Eunice station and two 24-inch scrubbing towers of 26 million cubic feet capacity at the Jal plant.

The company has been obtaining 76 million cubic feet daily of residue gas, including 34 million feet from Phillips Petroleum Company. The additional 20 million feet will be supplied by Warren Petroleum Company.

Preference rating for the materials required for the construction of the new facilities have been granted by the War Production Board.

Back Issues Needed

THE OIL WEEKLY has need for a copy of the May 12, 1941, "International Issue of the magazine, and the March 18, 1935, "World Oil Survey" number. We would appreciate receiving these copies from anyone who has them available.

Recruitment Program and Advisory Committee Said Needed for Manpower

Up to date the petroleum industry has attempted to meet its manpower problem by prewar recruitment methods and hope for wholesale deferments, but it is questionable whether it will be possible to maintain production requirement levels unless changes are made in the program, George E. Dewey, war manpower counselor for PAW, states after a nation-wide survey.

Dewey recommends that to meet the situation, a manpower advisory committee composed of industry members working in cooperation with the operating divisions of PAW be formed at the earliest moment. Such a committee would examine manpower utilization in every branch of the industry and suggest most effective techniques and methods to operators.

The survey conducted by Dewey showed that so long as the production branch of the industry can drill its programmed holes and supply crude oil in volume asked, it has shown no inclination to use extraordinary means to build up a safe manpower force.

Such policy, safe to date, is hazardous under new draft regulations. An increase in tempo of training programs and recruitment appears mandatory.

The survey showed lack of adequate housing as the most serious handicap toward recruiting for the production branch. Producing, drilling and exploration companies believe that if housing were made available in certain sections their production schedules could be kept closer to requirements. Particularly tight spots for housing are West and Southwest Texas, Central California and Western Colorado.

A program, set in motion by the counselor through the Army, should result in immediate procurement of portable Army huts suitable for either barracks or family dwellings. In addition, living quarters on an abandoned airfield in Southwest Texas soon will be made available for drilling and production crews. California drillers and producers say Army huts would solve their principal hiring problems in the Taft area. Ditto in the new Rangley field, Colorado.

Unitized Plan Acceptance

District 3 has allowed its intensive recruiting program to wane and District 2 has declined to enter into any such unitized plan, the report shows.

However individual producers in District 2 have complained during the year of their inability to recruit workers and have requested their full quota of deferments and have instigated many requests for furloughs from the Army. Good results from unitized recruiting programs in Districts 3 and 5 and the impending loss of men through the draft cause the counselor to urge some system insuring a maximum exposure to the available manpower in District 2. So long as no special efforts are being made in Districts 2 and 3, the actual requirements for draft deferments are, to say the least, questionable in many job categories, the survey says.

Exploration representatives indicated that if technical staffs could be kept intact there would be no difficulty in replacing the non-technical workers.

Field servicing units, however, and drilling companies felt that the present draft requirements would seriously affect their operations. This leads to the natural question of whether the exploration companies have employed more effective training and more aggressive recruitment methods than those companies engaged in drilling and field servicing activities. Findings of the survey do not indicate that this is true but it is true that these various branches of the production industry work in the same areas and obviously are exposed to the same available manpower.

Because of the quality of manpower available and because of the training it has been possible to impart to new employes, the actual work accomplished per man as measured by the length of time it takes to do regular jobs is considerably less than should be expected based on prewar standards. During the past two years various aspects of this problem have been discussed with industry and many larger drilling companies were interested in establishing a school where basic training could be had and, at the same time, not endanger the operations of an actual drilling rig.

Wage rates have prevented companies in some areas from recruiting their normal share of the available workers, in California particularly. Incidentally, California's inability to recruit workers has actually led to the loss of approximately one day's production per month.

PAW has the responsibility to see that there is produced a programmed amount of war products, in Dewey's opinion, to ignore suggestions that steps be taken which will tend to insure the maximum extent possible an optimum working force.

Data Lacking for Manpower Plea

Failure of operators to submit necessary information promptly is making difficult the efforts of PAW manpower officials to evaluate the effect of the new Selective Service deferment procedure.

A letter urging that consideration be given the needs of the petroleum industry, requiring the deferment of more than the 30 percent of men in the 18-29 age group provided for by Selective Service orders to draft boards, is understood to have been sent to War Mobilization Director James F. Byrnes but as yet, so far as could be ascertained, complete statistics have not been compiled to support the appeal.

PAW has received approximately 1600 schedules, representing something like 50 percent of the industry as a whole and including about 85 percent of the refiners, carrying about 300,000 employes of whom about 13,000 are in the 18-29 age group.

As yet, PAW is unable to make any estimate of the actual number of deferments which would be available under the 30 percent plan, although there would be about 3900 for the 13,000 men so far reported.

While only 30 percent of the men in the affected age group will be granted occupational deferments, unless the Byrnes committee acts, it is to be expected that many of the 70 percent not given such deferments will be rejected by Army examiners for physical reasons. However, it is emphasized, that possibility is given no weight in PAW's consideration of the problem but was noted merely to give a little assurance to operators that they may not be quite as badly off as many fear.

Roosevelt Throws Weight Behind Reciprocal Trade Pact Extension

President Roosevelt last week threw his support behind legislation which would further ease the path for postwar importation of foreign crude and products.

In a message to the House March 26, the President urged prompt enactment of a bill extending the reciprocal trade agreements act of 1934 for a period of three years from next June 12, its present expiration date, and provide for a cut of fifty percent or more in present tariff rates in the negotiation of new treaties.

Effect of the legislation would be to permit the Administration to negotiate new agreements with Venezuela, Colombia, Mexico and the Netherlands which might result in reducing the import oil tax to one-eighth cent per gallon. The tax originally was one-half cent per gallon, but was reduced to one-fourth cent in the agreement with Venezuela, under which an import quota was set up of five percent of the total quantity processed in domestic refineries.

In his message, the President took the position that continuance of the act is essential to making effective plans of the United Nations for postwar world relationships, and urged that party lines be ignored by Congress. Failing affirmative action to further loosen trade barriers, he said, "we shall see built up in all countries new vested interests in a system of restrictions, and we shall have lost our opportunity for the greater prosperity that expanding trade brings."

Roosevelt asserted the present act has been only partially successful because we did not have enough to offer certain other countries to serve as a basis for the further concession we wanted from them; included in the countries which still have high barriers against our exports, he said, are the Netherlands, Great Britain, Canada, certain other European countries "and most of the American republics."

"I therefore recommend that the 50 percent limit be brought up to date by an amendment which relates it to the rates of 1945 instead of 1934," he told Congress. "Then we shall have the powers necessary to deal with all our friends on the basis of the existing situation."

"This legislation is essential to the substantial increase in our foreign trade which is necessary for full employment and improved standards of living. We cannot hope to maintain exports at the levels necessary to furnish the additional markets we need for agriculture and industry—income for the farmer and jobs for labor—unless we are willing to take payments in imports."

Hearings will be opened on the legislation by the House Ways and Means Committee this month, probably April 16, at which representatives of the oil industry are expected to make a strong fight against continuance even of the present arrangements. Basis of their opposition will be the effect of imports of even five percent of our refinery throughput upon domestic crude prices, and it will be pointed out that following the initiation of the import quota in 1940 the domestic price structure remained at depressed levels, a factor which has been repeatedly urged as a reason for an increase in OPA ceilings.

Tariff Commission Reports Will Touch on Oil Imports

The Tariff Commission, within the next two or three weeks, will send to Congress "five or six" reports, each dealing with a different product, discussing the probable imports of oil in the postwar period, covering the results of an investigation ordered by the Senate last December. These are expected to have an influence upon the bill to extend life of the Reciprocal Trade Agreements Act, particularly as the reports are to contain estimates of possible imports under varying levels of duty rates.

The reports will show 1939 quantity and value of imports and quantity and value of domestic production, consumption and exports, ratio of imports to domestic consumption, and number of persons engaged in production of all articles, dutiable and free, of which more than $100,000 worth was imported in 1939 or, in the judgment of the commission, might be imported in excess of that amount in the postwar period.

Exploration Geophysicists Meet in Tulsa This Week

The fifteenth annual and third wartime conference of the Society of Exploration Geophysicists will be held April 4, at the Mayo Hotel, Tulsa, Oklahoma. Although the society also is holding meetings in Houston and Dallas, at which times interchange can take place, the Tulsa meeting is designated as the official meeting.

W. M. Rust, Jr., Humble Oil Refining Company, Houston, Texas, president of SEG, will open the session with an address: "Evaluation of New Geophysical Methods."

Other addresses include: B. B. Weatherby, Geophysical Research Corporation, Tulsa, "Early Seismic Discoveries in Oklahoma"; Paul C. Reed, Gulf Research & Development Company, Houston, "Geophysical History of the Heidelberg Field"; W. T. Born, Geophysical Research Corporation, Tulsa, "The Attenuation Constant of Earth Materials, II"; PAW representative, "Geophysical Exploration in Foreign Countries."

M. B. Widess, Stanolind Oil & Gas Company, Tulsa, "Effect of Surface Topography on Seismic Mapping"; H. Wayne Hoylman, Gulf Research & Development Company, Pittsburgh, Pa., "Seismograph Evidence on the Depth of the Salt in Southeast Texas"; W. B. Robinson, Gulf Research & Development Company, Pittsburgh, "Refraction Waves Reflected at a Fault Zone"; J. M. Kendall, Naval Ordnance Laboratory, Washington, D. C., "Airplane-noise Interference with Seismic Prospecting."

E. D. Alcock, National Geophysical Company, Dallas, "A Department for Review and Analysis of Seismic Data"; W. K. Hastings, Gulf Research & Development Company, Pittsburg, "Gravimeter Operations in the Foothills Belt of Alberta, Canada"; Jack W. Peters and Albert F. Dugan, Magnolia Petroleum Company, Dallas, "Gravity and Magnetic Investigations at the Grand Saline Salt Dome"; H. Klaus, Klaus Exploration Company, Lubbock, Texas, "Torsion Balance Step Anomalies in Northern Tillman County, Oklahoma"; S. S. West, Stanolind Oil & Gas Company, Tulsa, "The Relative Abundance of the Carbon Isotopes in Petroleum"; R. E. Fearon, Tulsa, "How the Properties of Nuclear Radiation Influence Radioactivity Logs"; R. S. Dahlberg, Jr., The Carter Oil Company, Tulsa, "Investigation of Natural Earth Currents."

A number of papers will be announced by title and will be published later.

Buyers Must Pay Haulage Charge on Tubular Goods

Operators purchasing excess oil country tubular goods held by other operators will hereafter find their costs increased by an order issued by the OPA March 27, effective April 2, requiring buyers to pay haulage charges heretofore absorbed by the seller.

The order authorizes holders of excess stocks of oil country tubing, casing, drill pipe and drive pipe to include in their selling prices to consumers the transportation charge the holder paid or would have paid a commercial trucking company for hauling the goods from the nearest railroad siding to the place where the stock is held. This authorization, however, is to apply only when the material is resold in substantially the same form as received.

OPA's action was based on the fact that oil fields frequently are located at long distances from railroad facilities and some companies that are holders of excess stocks of tubular goods frequently have transported them to places of storage adjacent to fields. Thus sales have been retarded.

Because of the critical need for pipe, OPA believes its authorization to pass the trucking charges on to buyers will encourage faster sales of idle materials in oil companies' hands. Under the order, the holder still will be required to absorb the trucking charges on line pipe which he sells.

Resignations of Two PAW Executives Announced

PAW has lost two more of its executives through resignation, William Argyle, associate director of refining, and Henry M. Brown, director of natural gas and gasoline for District 3, retiring at the end of March.

Argyle, who joined the agency in September, 1943, is returning to his position as assistant manager of refining for Sinclair Refining Company. Brown, who also joined PAW in September, 1943, is resigning because of ill health. Prior to taking over the District 3 post he was president of Midland Gasoline Company, Houston.

Officers Elected by AAPG

New officers of the American Association of Petroleum Geologists chosen at the society's business meeting held in the Mayo Hotel, Tulsa, Oklahoma, March 27. Left to right: Gayle Scott, professor of geology, TCU, Fort Worth, Texas, editor of the AAPG Bulletin; M. G. Cheney, president of Anzac Oil Corporation, Coleman, Texas, president; Ira H. Cram, The Pure Oil Company, Chicago, retiring president and member of the executive committee; M. Gordon Gulley, Gulf Oil Corporation, Pittsburgh, Pennsylvania, vice-president and Edward A. Koester, Darby & Bothwell, Incorporated, Wichita, Kansas, vice-president.

Increase in Carbon Black Program Approved to Meet Rubber Demands

A 14-point program to meet the current grave need for increased supplies of carbon black, which will be international in scope, was laid down March 29 by the Inter-Agency Carbon Black Committee appointed March 10 by Mobilization Director James F. Byrnes to deal with the major problem barring the scheduled production of rubber and rubber products.

When the program is fully underway an additional production of 188,100,000 pounds of carbon black a year will be added to present facilities.

PAW, beginning immediately, will make available 115,000 gallons of propane gas per day, which will permit an increased production of a million pounds of carbon black per day. As soon as heating demands recede, probably within a month, it will make available an additional 150,000 gallons of propane gas daily, and as soon as equipment to process it is installed, requiring six weeks to two months, will provide 10,000 barrels of naphtha and 2000 barrels of gasoline residue daily, adding approximately 1½ million pounds per month of carbon black.

In addition, the Texas Railroad Commission is assisting by obtaining additional sources of gasoline for several carbon black plants in the state, which it is estimated will permit the manufacture of another 1½ million pounds monthly.

The War Department has been requested to take steps to obtain production of carbon black from existing facilities in France; production of carbon black in California, the Mid-Continent areas and in Canada where sweet gas may be used is being pushed, and in Louisiana other steps are being taken to permit the use of sweet gas.

Possibilities of producing carbon black in the Middle East also are being investigated.

The various federal agencies, particularly PAW, are taking steps to make enriched gas available to the industry wherever possible, thus providing for increased production from existing facilities of as much as 40 percent in some plants, the committee reported.

Included in the construction program, for which WPB will provide the necessary priorities and in the financing of which Defense Plant Corporation will participate, are supplementary facilities at Cities Service Oil Company plants in Ector County, Texas, to cost $224,000, and North Cowden, to cost $150,000; additions to Phillips Petroleum Company plants at Borger, Texas, to cost $379,810; Goldsmith, Texas, to cost $53,000, and Eunice, New Mexico, to cost $142,826, and new and added facilities for Cabot Carbon Company, Columbian Carbon Company, J. M. Huber, Inc., Jefferson Lake Sulfur Company, Charles Eneu Johnson & Company, The Roxboro Steel Company, United Carbon Company, and United Carbon Judkins Company. The program, representing 40 percent of the expansions regarded as necessary, will cost, all told, $11,371,970.

Cheney Named President At Conference of AAPG

American Association of Petroleum Geologists in a streamlined annual meeting March 27 in Tulsa, elected new officers, approved committee reports and presented annual awards to outstanding members.

M. G. Cheney, president of Anzac Oil Corporation, Coleman, Texas, was elected president, succeeding Ira H. Cram, Pure Oil Company, Chicago.

Other officers chosen were M. Gordon Gulley, Gulf Oil Corporation, Pittsburgh, Pennsylvania, vice president; Edward A. Koester, Darby & Bothwell, Incorporated, Wichita, Kansas, secretary-treasurer, and Gayle Scott, professor of geology, TCU, Fort Worth, Texas, editor.

At a dinner sponsored by the Tulsa Geological Society Wallace E. Pratt, director of the Standard Oil Company (New Jersey) was presented the Sidney Powers Memorial Award in recognition of distinguished and outstanding contributions to and achievements in petroleum geology. Presentation was by E. L. DeGolyer of Dallas, Texas, past president of the AAPG who, earlier, had been given an honorary life membership in the society. This year's President's Award went to William E. Wallace, Jr., of Shreveport, Louisiana, presented by A. Roger Denison.

Crude Oil Production in the United States

(Estimates compiled by The OIL WEEKLY. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED April 7	March 24
Alabama	250	250
Arkansas	80,200	80,300
California	908,150	912,250
Colorado	10,000	9,900
Florida	15	15
Illinois	187,900	191,600
Indiana	10,350	10,300
Kansas	275,850	275,500
Kentucky	14,600	14,200
Louisiana	365,700	365,750
North Louisiana	70,100	70,150
South Louisiana	295,600	295,600
Michigan	51,050	50,100
Mississippi	52,300	52,200
Missouri	100	100
Montana	23,110	24,500
Nebraska	1,000	950
New Mexico	104,750	104,750
New York	12,750	13,850
Ohio	6,650	7,450
Oklahoma	372,950	369,350
Pennsylvania	36,150	35,800
Tennessee	35	35
Texas	2,159,050	2,159,050
Upper Gulf Coast	564,500	564,500
East Texas Field	381,000	381,000
Rest of Eastern Texas	146,750	146,750
Lower Gulf Coast	249,700	249,700
Southwest Texas	81,400	81,400
South Central Texas	21,000	21,000
West Texas	477,350	477,350
North Texas	149,300	149,300
Panhandle	88,050	88,050
West Virginia	8,300	9,700
Wyoming	105,300	105,600
Total United States	4,786,510	4,793,500

BUREAU OF MINES REPORT

Total stocks, foreign and domestic, March 24, as reported by the Bureau of Mines were: 221,227,000 barrels with a daily average production of 4,782,000; and runs to stills 4,742,000.

Most Objections Overcome In New Texas Gas Measure

A new oil and gas conservation measure for Texas to be heard April 5 by the House Oil and Gas Committee, is a substitute based upon the bill proposed earlier (THE OIL WEEKLY, March 19.)

This time the Railroad Commission and members of the oil and gas industries expect the bill to be acceptable to the committee, perhaps without protest.

There have been a number of revisions. The commission is still definitely authorized to prorate gas on a reasonable basis. It still is charged with reducing flare gas by requiring cycling where feasible and allocation of certain casinghead gas to fill part of the reasonable market demand. Burden of delivering casinghead gas to transmission companies is placed upon the producer. The commission is permitted greater latitude in setting gas-oil ratios. Panhandle field is excepted from necesshandle is excepted from necessity of delivering casinghead gas to pipe lines.

Compared with the original substitute, before revision, principal changes in definitions are the elimination altogether of any definition of condensate or condensate wells, and the definition of a gas well as any well from which all hydrocarbons produced were at the time of discovery of the pool in the gaseous phase in the reservoir, or which is not within the definition of an oil well.

Paragraph (m) under Section 3, (Page 27, THE OIL WEEKLY, March 19) has been revised considerably. The commission is given authority to permit ratios up to 10,000-1 if it is found that restriction to the 2000-1 ratio would tend to cause a reduction in the ultimate recovery of oil from the pool. Wells producing at ratios in excess of that set for the pool shall be restricted by the volumetric withdrawal factor to the amount of oil or gas produced from other wells in the reservoir producing at the prescribed ratios. Also when the operation of an oil or gas pool becomes predominantly gas production, the commission, after notice and hearing, may declare such a pool to be a gas pool and authorize it to be developed and operated as such.

In the same section the paragraph dealing with application of the volumetric withdrawal factor to gas wells producing in gas-cap fields from which oil is also produced has been sticken out. This elimination may not meet with the approval of a number of operators, but is not considered sufficiently objectionable to risk failure of the entire measure. Another provision of the subsection eliminated is that which had authorized taking of gas from one sand or one field to another if used to get greater oil recovery.

In revising Section 14, of Article 6008 the authors of the bill have excepted the Panhandle field and other pools producing both sweet and sour gas from the provision that the commission allocate casinghead gas to fill a portion of the reasonable market demand if it be reasonably accessible to market. In this connection it has given consideration to transmission companies by providing that no gas shall be considered reasonably accessible to market:

"a. If it can be injected at a reasonable cost into a producing formation in the field from which it is produced and such injection is feasible and reasonably necessary in order to prevent waste; b, unless gathered and tendered to purchaser on a basis and under the same terms, circumstances and conditions as those prevailing for dry sweet gas in the same or nearest field; and c, the purchasing, transporting and marketing of said gas to the purchaser's established markets will not require the purchaser to treat such gas, or to install or construct facilities of a kind, character and amount which it has not been required to install or construct in purchasing, transporting and marketing dry gas in like quantities from the same or other fields in the same general area; and provided further that the total quantity of casinghead gas available to purchaser renders it economically practical for purchaser to make the required investment in facilities. In ascertaining, determining and allocating the reasonable market demand for gas, the Commission shall exclude the gas produced by an operator or purchased from another operator and used in drilling wells and other development and producing operations in the field."

The provision that the commission may permit or *require* the cycling of gas in any pool or portion thereof has been changed to deny the commission authority to require cycling in a field where the gas will not yield as much as 1½ gallons of pentanes and heavier liquid hydrocarbons per 1000 cubic feet. The original substitute bill permitted the authority where yield was as much as ½-gallon per 1000 cubic feet. The language was also altered to specify that requiring of such operations would not result in confiscation of property.

Heavy Stocks of Gasoline Together With Tank Shortage Causes Concern

The quantity of gasoline in United States storage tanks, which has risen sharply in the past six months to near all-time record levels despite expansion of military activities, is beginning to cause worry. There results an acute shortage of storage facilities. Some fear this means an over-supply of gasoline is to become a problem for the industry soon. Others do not look upon the immediate situation as holding disturbing possibilities, but do think the end of World War II will complicate the problem. Still others do not agree that gasoline supplies will be above requirements now or later, thinking any excess supply can be quickly drained off by greater allocations to motorists.

At the end of March there were 99 millions barrels of gasoline in storage in the United States, a near all-time high which compares with the peak of 109 million barrels in mid-March, 1942, and with a wartime low of 68 million barrels in October, 1943. Gasoline stocks have risen 13½ million barrels above a year ago, and 20 million barrels since last October 1. There has been an 11½ million barrel increase since last June, or since military use became exceptionally heavy. Allied armies did not invade Normandy until June and the Philippines and other Pacific islands have been invaded during this period.

Those who fear there will soon be a serious oversupply of gasoline say that any additional growth in stocks will cause the current storage facility shortage really to become acute. Refiners, then, would have to find some way to dispose of more gasoline, or curtail plant output. This group expects stocks to continue to increase as long as record output of motor fuel is maintained, for these reasons:

1. The sharp growth that has occurred in the past year despite peak military use;

2. Military consumption after the war with Germany ends probably will be no larger, if as great, as in the past year;

3. Large additional quantities are likely to go to storage between defeat of Germany and all-out warfare against Japan;

4. The situation cannot be considered as seasonal, although gasoline stocks customarily reach their highest levels of the year the end of March, because there will be less seasonal fluctuations than usual. Curtailment of civilian driving reduces the effect of weather, and military use has been high during March which usually is a low gasoline-consuming month;

5. Civilian gasoline stocks are quite low, constituting but 53½ million barrels of the total, and therefore larger allocations to motorists might be considered dangerous not only to car and tire conservation but also from a gasoline supply viewpoint unless some military fuel is released.

Some See No Trouble

Those who do not think the immediate gasoline stocks situation disturbing point out that:

1. Stocks are no higher now than at this time of the year in prewar 1941, and that total consumption (military and civilian) is higher;

2. The situation is seasonal, and stocks will be reduced during the summer. (Even in all three of the war years, gasoline stocks have declined in the summer and increased in the winter);

3. Military authorities say there will be no decrease in gasoline consumption by armed forces after Germany surrenders;

4. Any surplus can be eliminated by larger allocations to civilian motorists. If the drivers of the 20-odd million cars are given one more gallon per week, gasoline consumption would be increased by 75,000 barrels daily, almost equal the average increase of the past six months. Such an increase, they say, would not damage tire or car conservation efforts.

All those who look upon the current situation as discouraging, plus many of those who are not disturbed by present conditions, view with concern the prospects following cessation of all hostilities. They are fearful because:

1. There will be a sharp reduction in gasoline consumption when military use declines and before civilian automobiles get back to normal driving habits;

2. The military probably will have large quantities of gasoline in storage at the end of hostilities, and no matter how it is disposed of, it will absorb a part of the existing demand.

Kantzer Named Head of Pacific Coast Division API at Wartime Conference

WARTIME problems of the petroleum industry were the theme of the one-day wartime conference of the Pacific Coast District of the American Petroleum Institute's Division of Production, which was held in Los Angeles, California, March 29. A wide range of topics was included on the program, with speakers from PAW officials and many men from the industry presenting papers and discussions.

New officers elected include B. P. Kantzer, Union Oil Company of California, chairman; L. O. Bowen, vice chairman for Los Angeles Basin; Paul E. Lehr, Shell Oil Company, vice chairman for San Joaquin Valley; F. W. Hertel, Tide Water Associated Oil Company, vice chairman, Coastal District; W. G. Colrey, secretary-treasurer; and Mrs. Elsie M. Edmiston, assistant secretary.

Asserting that oil's potentialities are great "for good or evil beyond that of any other commodity," Ralph K. Davies, Deputy Petroleum Administrator for War, stressed the problem of oil as being of special importance in the management of international affairs to prevent another war.

The proposed Anglo-American agreement, he termed as "the forerunner of an all-inclusive international agreement on oil between the governments of the world." Davies noted that the differences between the government and the oil industry on the agreement have been resolved satisfactorily in the second draft now being considered by various departments in Washington.

"The obstacle at the moment centers about the inclusion of an antitrust immunity clause giving the industry what I believe to be only fair treatment in relation to the antitrust laws," he said. "In essence it provides that when the industry acts in concert at the governments suggestion in carrying out a government-approved plan, it shall not thereafter be prosecuted for the act."

Boyd Speaks

William R. Boyd, Jr., president, American Petroleum Institute, and chairman, Petroleum Industry War Council, speaking on "Petroleum's Magic Towers," declared that the science of hydrocarbon chemistry energized by the war, undoubtedly contains the seeds from which many new industries will spring up in this country after the war.

"The various processes which take petroleum apart and put it back together in new and vastly improved forms have literally leaped from the laboratory to full-scale operation overnight," Boyd said.

"Today's aviation gasoline is only a distant relative of yesterday's, and tomorrow won't even know its own grandparents. Science is reshaping the petroleum molecule, one of nature's greatest sources of mobile energy. The petroleum scientist insists he is merely standing on the threshold of what he believes is capable of accomplishment and the ultimate place in our lives of this new science is beyond the comprehension of any of us."

The blueprint of what "the magic towers of petroleum" will mean to the United States of tomorrow and what they could mean to tomorrow's world is clear and simple, Boyd pointed out.

"To reap the benefits of petroleum, the way must be cleared and kept cleared to produce it, to process it, to transport it and to distribute it. The path must be kept open for constructive competition between men and organizations to the end that each man's mind is whetted against the other man's abilities."

Reservoir Fluid Flow Study

An analysis of reservoir fluid flow research as presented by Norris Johnston, General Petroleum Corporation, Los Angeles, and H. Van Wingen, Richfield Oil Corporation, also of Los Angeles, based upon a survey of some of the available literature pertaining to the flow of fluids in reservoirs, leads

Oil Tankers, Already Short, Needed in Argentine Trade

Shifting of tankers from civilian to military service will delay for several months the building up of East Coast home-heating fuel oil stocks in anticipation of next winter's requirements, it was warned March 29 by PAW.

Reporting that tankers hauling civilian products from the Gulf Coast to District 1 ports were shifted last week to military service to meet urgent overseas requirements of the armed forces, Deputy Administrator Davies said it now appears that it will be necessary to depend more fully on railroad tank cars for the replenishmet of supplies.

Another angle was injected into the tanker situation during the week with the declaration of war upon Germany and Japan by Argentina.

As a result of her belated adherence to the cause of the United Nations, Argentina's Farrell regime will be recognized by the other American governments, and commercial relations which have heretofore been limited will be restored.

One of the major needs of Argentina at the present time, it is understood, is petroleum, and it is expected that arrangements will be made in the near future to put some tankers on the Argentina run. Among other things, it has been reported that a trade has been arranged under which the United States will furnish a large quantity of fuel oil in exchange for linseed oil.

Meanwhile, to ease the supply problem foreseen next winter, PAW has called upon the governors of the states to suspend local regulations that hamper maximum production and distribution of kerosine and fuel oil, such as the varying flash-point minimums which, in some parts of the country, are higher than those required by federal specifications.

National Oil Scouts Name Officers

H. F. (Tax) King (center) of the Continental Oil Company, Ardmore, Oklahoma, was named president of the National Oil Scouts and Landmen's Association in Dallas March 26. Hal C. Walker (left), The Ohio Oil Company, Casper, Wyoming, was elected second vice president and H. Layton Johns (right), Freeport Sulphur Company, New Orleans, the retiring president, became chairman of the board of directors. Other officers named were F. D. Johnson, The Superior Oil Company, Corpus Christi, Texas, first vice president; R. M. Knoepfel, The Atlantic Refining Company, Carlsbad, New Mexico, secretary-treasurer; and W. G. Sinlcair, Gulf Oil Corporation, Wichita Falls, editor-in-chief.

to the conclusion that, with notable exceptions, there is a general tendency for investigators to draw more elaborate deductions than the fundamental nature of the data would seem to warrant. As a result, it is explained, certain concepts have taken on the appearance of facts, though their derivation is supported by little more than the extrapolation of an hypothesis. Likewise, in striving for useful and practical results, a tendency has been observed to introduce too many variables, thus leading to results of a questionable fundamental value. Offsetting this, certain groups have gone so far in the direction of eliminating all but one unknown, that the system studied bears but little resemblance to the actual petroleum reservoir with which we are concerned. As a result of these conditions much concrete knowledge needs yet to be disseminated in order to compile a reasonable fund of knowledge of reservoir fluid flow. In this regard it is to be regretted that much material of great fundamental value is being withheld from industry-wide use due to personnel shortage to prepare it for presentation, and due to competitive secrecy.

The majority of research performed to date has dealt with unconsolidated sands and has been conducted without the consideration of a second immiscible liquid phase to simulate interstitial water. Yet, as all normal producing sands contain water, it is to be questioned seriously if results of experimental laboratory work on samples one-hundred percent oil saturated can be applied to actual field problems. Likewise, it is to be cautioned that any conclusions based upon experimental work performed with unconsolidated sands do not necessarily apply quantitatively to consolidated sands. Greater care would also seem to be in order in regard to the determination of adequate scale factors in interpreting the results of laboratory analysis in terms of a corresponding behavior of the prototype.

The literature studied has frequently presented distinct curves of relative permeability versus saturation to apply respectively to consolidated or unconsolidated sands. Opinion is divided as to whether such a distinction is justified. Those who think that there is actually a gradual change in sand properties and resulting reservoir behavior involving all intermediate gradations between consolidated and unconsolidated sands would like to see this matter adequately tested. It is thought that the apparently large distinction between curves so far published may be in part a distinction between high and low permeability behavior rather than between consolidated and unconsolidated sand behavior.

The principal lesson learned from drilling KCL 20-13, until recently the deepest well in the world, was that with modern deep well drilling equipment such as is being used at Greeley, Rio Bravo, and Kettleman Hills, with modern practices and competent personnel, supervision, and technical control, such wells can be drilled in the Tertiary of California to depths of three miles or more with good prospects of success. Such is the opinion of Omar A. Cavins, of Standard Oil Company of California, who reviewed the project under the title of "California New World Record Hole." No out-of-the-ordinary precautions other than intensified supervision were used because of the depth of this hole. All bits were limited to six hours on bottom. The 3½-inch drill pipe, "because it approached near final depth, a safety factor of ⅓, was handled with relative gentleness into and out of the hole."

Maximum temperature at the overflow was 135 degrees F. It was impossible to get a temperature below 14,966 feet where it was 380 degrees F. Apparently the quality of the mud was not affected by this temperature, however the mud was continuously circulated over the mud ladder to cool and remove the small amount of gas.

During the entire drilling and abandoning of the well there were no disabling accidents on the derrick floor and only two minor ones at the pumps.

Because of the war-induced lack of manpower, the personnel problem at the well was the most difficult routine one of the operation. Very often men worked through 16 hours. Many worked seven days per week. The brunt of the load fell on the veteran employes and only because of their loyalty and pride was the well completed.

Sometime before abandonment it had been decided the hole could be drilled to 16,500 feet with complete safety to the equipment and crew. However, the dense material and 65-degree dip recovered in the core at 16,166 feet, and the electric log taken at 16,186 feet showed that at this location the hole had penetrated beyond reasonable possibilities of the existence of oil, so it was decided to cease drilling before the ultimate depth, safe with the equipment was reached. The well was abandoned at 16,246 feet.

Testing Drilling Mud

"Field Testing of Drilling Muds," by Vernon B. Zacher, of Tide Water Associated Oil Company, Ventura, California, treated some aspects of instruments and methods used in mud testing and control as applied at drilling rigs. Various mud problems were discussed in their relation to drilling operations. Some of the treatments were not new but were included in the interest of completeness.

"The Performance of Gas Lift Through Small Tubing," by Carl Tutschulte, district production engineer, Tide Water Associated Oil Company, Los Nietos, California, gave an analysis of gas lift through small "macaroni" tubing. Individual well-behavior characteristics of the group of wells studied were compared at length, and their effect separated from the inherent characteristics of the production method.

The application of the conclusions derived from the test data to the design of any gas-lift system using macaroni tubing is discussed. A series of charts illustrating these general relationships is included in the hope that they may be of use in the application of this method of gas lift to other wells.

"Oil Well Casing Failures," by Fremont R. Schmieder and R. J. Kettenburg, Shell Oil Company, Ventura, California, is a record of the casing failures in the Ventura Avenue and Paloma oil fields which have been the cause of deep concern to operators in California. Hydrostatic tests made in the field show that API standards do not assure adequate joint and bursting strength to meet these deep well requirements.

Manufacturers were called upon to assist in making a series of pressure tests on new casing on field pipe racks in an effort to find a solution for the failures. Low leak resistance of T and C joints uncovered in these tests was the topic of discussion before the California API Drilling Practice Committee and the California District subcommittee on the standardization of oil-country tubular goods. The latter committee has recommended the appointment of a subcommittee of manufacturers and users to carry out a research program for the purpose of determining changes in standards necessary to assure proper joint tightness, joint strength, and bursting strength of API casing under well conditions.

Multi-Zone Wells

"Performance of Multi-Zone Wells in the Wilmington Field," by Read Winterburn, Union Pacific Railway Company, Los Angeles, and Carlton Beal, Richfield Oil Company, Los Angeles, presented a review made up of 249 multi-zone wells originally completed in the Ranger, Upper and Lower Terminal Zones, Wilmington Field, California.

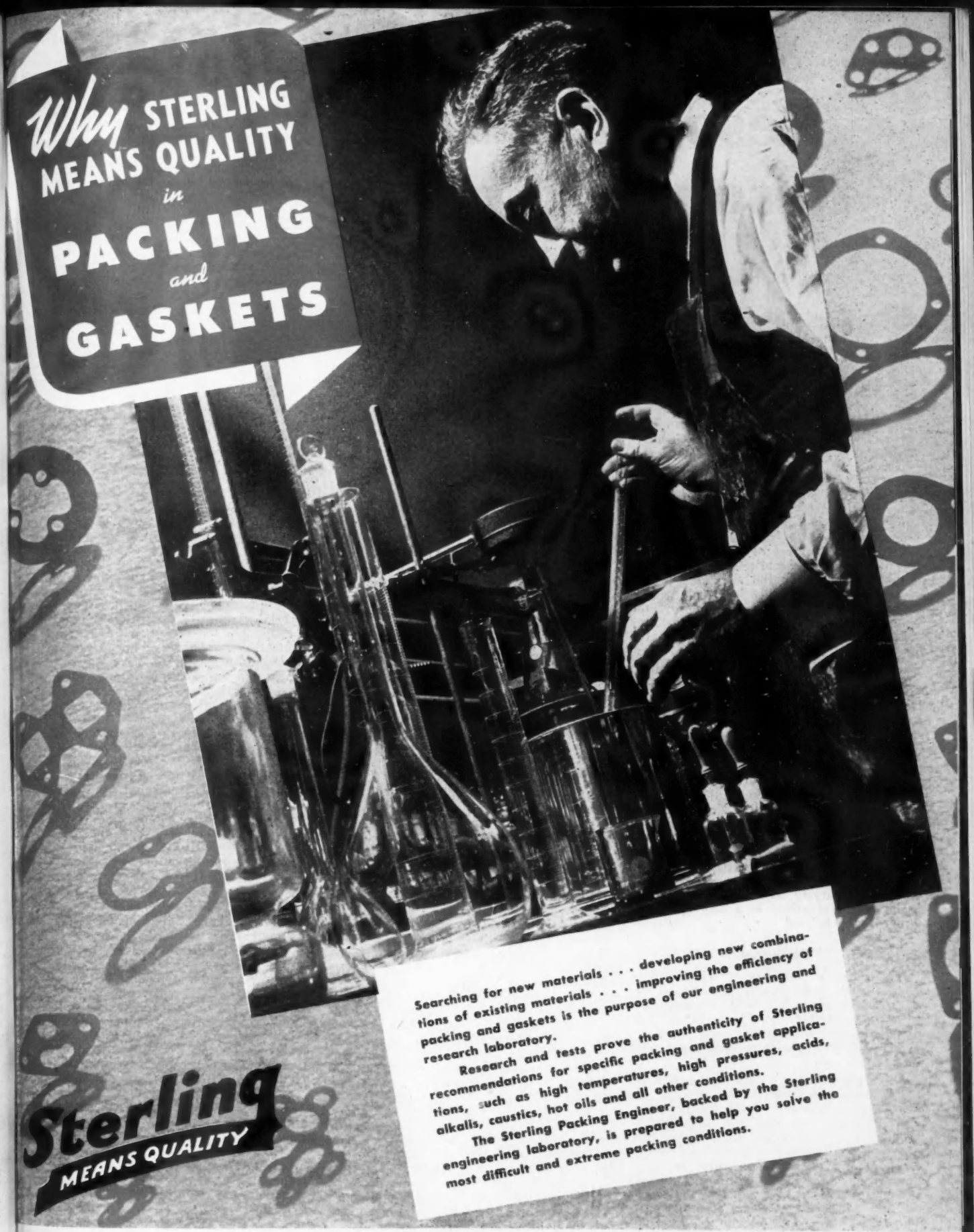
Although the field has been producing for about 7 years, results show that almost 40 percent of the original multi-zone wells have required remedial work, principally because of bad casing and tubing, water encroachment, and cessation of natural flow. All of the original multi-zone wells were completed flowing; 42 percent of these are now pumping. None of the pumping wells is equipped for simultaneous production of two or more zones separately by artificial lift because of mechanical difficulties such as sand production, corrosion of flow strings and packers, and large-volume water production. Conclusions are that multi-zone development in the Wilmington field has not been justified except where surface locations are limited and as a means of gaining advantage in competitive areas.

"Heavy Oil Viscosimetry and Its Application to Production Problems," by R. H. Zinzer, Union Oil Company of California, Orcutt, California, discussed methods of measuring the viscosities of extremely heavy crude oils, and presented results of tests in tabular and diagrammatic forms. Further experiments for the determination of pressure drops in oil well pumps was debated, and also the effects of high viscosity on surface horsepower and oil well pump efficiencies.

An impromptu discussion of "United States Crude Supply and Reserves," was led by Ralph J. Schilthuis, assistant director, Production Division, Petroleum Administration for War.

Brigadier General Walter B. Pyron, discussed the general set-up and objects of the federal aspects of the oil industry.

George Suman, chairman of the Pacific Coast District, API, presided over the meeting.



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Prerequisites for a Geologist—

Resources and Resourcefulness

By IRA H. CRAM*
President, American Association of Petroleum Geologists

STANDING at the very head of the long list of difficulties which consistently confront the oil industry is the problem of discovering adequate quantities of crude oil and gas. To date the industry, by developing unexcelled resourcefulness, has been eminently successful in solving this major problem. Members of this association—geologists, geophysicists, geochemists, teachers, petroleum engineers, scouts, production men, executives, operators and others—have made a signal contribution to the industry's success. Since the organization of the association 28 years ago, almost 26 billion barrels of crude oil have been won from the earth, and a little over 49 trillion cubic feet of natural gas have been produced and marketed in the United States. In addition, the estimated proved reserve of crude oil has been enlarged by approximately 14 billion barrels, and the estimated proved reserve of natural gas has been increased between 90 and 100 trillion cubic feet.

The accomplishment of finding 40 billion barrels of crude oil and between 104 and 150 trillion cubic feet of gas in 28 years is a record of which the industry can be justly proud. But that accomplishment is now history; what of the future? Two questions immediately present themselves. How large are our resources of oil and gas? Whatever they may be, are we going to continue to be resourceful enough to develop them economically? Nobody knows or has any way of knowing even the approximately correct answers to these questions. Part answers to both questions ventured by students are numerous and varied. I do not propose to offer even part answers, but merely to analyze certain aspects of the questions in a way that may prove to be helpful.

Resources

The nation's resources of oil and gas consist of the undiscovered reserve and the discovered reserve. The latter is subdivided into the proved reserve and the reserve already discovered but not recoverable at present prices and with present production methods.

Discovered Reserve—The total area in the United States covered by oil and gas fields is approximately 26,000 square miles. Approximately one third of this area is productive of oil. From these fields approximately 29¾ billion barrels of crude oil and almost 61 trillion cubic feet of gas have been produced, and the proved reservie is estimated at 20 billion barrels of oil and 114 trillion cubic feet of gas. The reserve of crude oil, not recoverable at present prices and with present production methods, may well be 25 or more billion barrels. We have discovered not only the commonly estimated 50 billion barrels of oil; we may well have discovered more than 50 percent more. This presently unrecoverable reserve is a resource of great importance, insufficiently stressed by many observers. How to *recover* an ever-increasing percentage of the oil we *discover* presents a challenge to the industry's resourcefulness in general, and to the resourcefulness of geologists and engineers in particular.

Undiscovered Reserve—The undiscovered reserve of oil and gas lies beneath certain oil and gas fields that have not been thoroughly tested to basement and beneath an area of approximately 1,600,000 square miles outside the producing fields. Scarcely a sizeable part of this prospective territory has escaped attention; yet enormous areas have hardly been scratched by the drill. These largely undrilled areas make up the horizontal frontier. The vertical frontier lies below the formation normally tested and below the depths customarily reached in drilling.

Faith in the existence of a large number of oil and gas pools in these frontiers as well as in the more densely drilled areas is justified by the general geology and history of discovery. In the horizontal frontier of thick, warped, changing sediments, traps capable of holding oil and gas cannot fail to exist. Some of these traps will be detected in advance of drilling by geological investigations; others will be found by geologists using the geologic data revealed by drilling. There are undiscovered traps and known traps that have not been drilled to sufficient depths in the more densely drilled areas between the horizontal frontier and the producing fields.

In considering the prospects of the more densely drilled areas, and of both the horizontal and vertical frontiers, the amount of condemning drilling is a most pertinent factor. Only structurally or stratigraphically well-located dry holes that have been drilled through all known producing formations or through the entire sedimentary column or to 15,000 feet can be considered as truly significant. Only those drilled through the sedimentary column may be judged as truly condemning.

Without attempting to present a complete discussion of deep drilling, certain significant facts should be pointed out. In a prospective area of approximately 150,000 square miles, most of which is in the Gulf Coast states, the sedimentary column is thicker than 15,000 feet, and in this large area only 5 wells have been drilled to 15,000 feet or deeper. In the area in which the sedimentary column is thinner than 15,000 feet, test wells to basement are rare indeed, except where the column is thinner than 5000 feet. Only approximately 325 wells have reached basement between the depths of 5000 and 15,000 feet in an area of approximately 850,000 square miles, and approximately half of these are located in a few California producing fields two of which produce from the basement. Even if all the dry holes reaching basement below 5000 feet were well located structurally or stratigraphically, the amount of truly condemning testing is small. The number of test wells reaching basement above 5000 feet in an area of approximately 600,000 square miles is inadequate.

How much of the oil and gas cached in the enormous horizontal and vertical prospective territories will eventually be found is anybody's guess. Until well-located dry holes have been drilled through the sedimentary column or to the limits of drilling equipment on a high percentage of the geologic anomalies that could be traps and on producing traps, there will be no nearly conclusive evidence that the end of discovery is in sight. However large the undiscovered reserve may be, it is of no practical importance unless ti is turned into the proved reserve. The conversion of undiscovered reserve to proved reserve has never been easy, except in retrospect, and it can only become less easy. We who are charged with the duty of finding and developing oil and gas fields must first find and develop a resourcefulness adequate to the task.

Resourcefulness

The nations resources of oil and gas are developed through the efforts of an army of men and industries cooperating in an atmosphere of free enterprise and private ownership. Various phases of the complicated procedure are dominated by men with special training and knowledge. The all-important initial phase—exploration—is naturally dominated by geologists who are specialists in the composition and structure of that part of the shell of the earth in which the deposits of oil and gas lie hidden. Resourceful geologists have applied their science to the solution of a great variety of problems of exploration and exploitation, so that today geology permeates the producing branch of the industry, and geologists occupy positions ranging in rank from trainee to company president or owner. Their horizon is virtually unlimited, and the successful capture of our hidden reserves of oil and gas depends in large part upon their performance. The resourcefulness of geologists is, therefore, an important component of the industry's resourcefulness, and, as such, it is worthy of special consideration.

Geologic Tools—During the past 25 years the precision of geologic investigations has been increased by the use of new geologic tools—planetable and alidade, core drill, magnetometer, torsion balance, refraction seismograph, reflection seismograph, gravimeter, various logging devices, etc. The invention of additional new instruments is not unlikely. But the development of a new geologic tool does not necessarily depend upon the invention of a new instrument. The torsion balance, for example, was not invented specifically for use as a geologic tool. Resourceful geologists made it a geologic tool by using it to determine geologic anomalies.

The geologic data available on a given area may be scant or voluminous, but in the aggregate the amount of information on the geology of the United States jamming the libraries and files of surveys, companies and individuals is staggering; and the rate at which factual material is furnished by geological and geophysical surveys and wells is no less staggering. Geologists have by no means exhausted the possibilities of making better use of this information in unraveling the geology. Mastery of the various methods of obtaining geologic data is necessary to the understanding of the facts and to the intelligent

* This address was given at annual business meeting of the AAPG March 27 at Tulsa.

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use of the methods. Referring particularly to the information acquired by geophysical means, geologists can add materially to the interpretations made largely by non-geologists by taking the trouble to learn the principles of the various geophysical methods, and, more important, by working with the data and realizing that they are, in fact, geologic data. Failure to work into the geologic picture this additional geologic information is akin to ignoring certain well logs or outcrops in interpreting the geology of an area. If geologists are hesitant to delve into reflection seismograph work, for instance, they need only recall that they use well logs daily and that a reflection seismograph record, like an electric log, is merely a well log expressed in physical, rather than geologic, terms. As a matter of fact, geologists have long used geophysical instruments—the compass, the dipneedle, the alidade, the binocular microscope, and the petrographic microscope. Geologists expand their understanding of the composition and structure of a fragment of rock by using the petrographic microscope. By using geophysical instruments they expand their understanding of the composition and structure of what is merely a larger fragment of the earth.

Understanding Other Fields

It is realized that not all geologists now have the opportunity of delving into all branches of geoscience, and, further, that there must be specialists in geoscience. Such specialists, many of whom have not been formally trained in geology, have done and will continue to do a most creditable job of acquiring and interpreting new data on the earth. They are indispensable. They can, however, improve their acquaintanceship with the science of geology just as every geologist can strengthen his acquaintanceship with the other geosciences. As geologists and other scientists attain a better understanding of each other's fields, the results of their combined efforts cannot fail to improve. Independent interpretations of each line of investigation by specialists in each field are important but inadequate. It is definitely necessary to develop an increasing number of geologists capable of interpreting, correlating and reconciling all earth data in the preparation of a single interpretation of the geology of a given area.

Controlled Imagination—Every geologist knows that information sufficient to solve any sizeable geologic problem is seldom, if ever, available. There are gaps between the geologic facts that can be spanned only by the imagination. Failure to bridge these gaps means failure to draw conclusions, however tentative they may be. And practically all decisions in exploration, ranging from the decision to explore a remote area to the decision to abandon the last well in an exhausted field, are based upon geological conclusions of a tentative nature. These tentative conclusions, or geologic ideas, grease the gears of the exploratory machine. They frequently turn out to be wrong, but without them little is started, little is accomplished.

To bridge the gaps between geologic data by leaps of an imagination under control is to be resourceful. Controlled imagination is not guesswork. It is imagination tempered by experience, knowledge and sound reasoning. Like a muscle it grows through enthusiatic exercise. Imagination plays its greatest role in the early stages of exploration. The choice of areas to work with seismographs or other tools capable of obtaining details of the geology, is ordinarily based upon few facts and much imagination. The geologist whose imagination assists in leading the right tool to the right area has contributed immeasureably to the discovery of oil or gas. The most competent reflection seismograph party can find no prospects if it is always assigned to unpromising areas by those is charge. In the progress of detailed investigations the geologist who detects in the incomplete work a suggestion of an important structural anomaly in an inaccessible area, and proves its existence by going to the trouble and expense of exploring the area in detail, has used his imagination to great advantage. The geologist who daringly places the right geologic interpretation upon a mass of data that the unimaginative are afraid to interpret has also demonstrated the potency of an imagination under control.

It would indeed be a calamity if geologists failed to develop further their imaginations by adopting the false premise that the machines will do their thinking for them. A new machine may make it unnecessary to imagine any longer what certain conditions may be, but each new machine provides geologists with new data upon which to ply their imaginations. The machines merely guide imagination into new channels. Thus, by using the reflection seismograph, geologists may no longer have to imagine what the subsurface structure may be beneath a surface nosing, but the problem of using the seismograph to the best advantage and of interpreting correctly the seismic data puts as great or greater burden upon their imagination. Likewise, in the days before electric logging when faulting was supposed to be extremely rare in the Gulf Coast, geologists did not have to work their imaginations on the solution of complicated fault systems.

Through experience in drawing geologic conclusions from a miscellaneous assortment of data, every geologist has developed to some degree the necessary powers of controlled imagination. Petroleum geologists as a group have matured to the point that their imagination, when under control, is in effect a geologic tool. In investigating the geology of the world for economic purposes, this mental tool must play a part increasing in importance as weaker and weaker geologic evidence must be employed as the basis for interpretations.

Controlled Imagination in Applied Geology—It need not be pointed out to a group of petroleum geologists that in this highly competitive oil business a constant stream of economic decisions, as well as geologic decisions, must be made based upon whatever geology may be available. Just as the undiscovered reserve is useless unless converted into the discovered reserve, geology is useless to the industry unless it is translated into economics. The petroleum geologist's job is not done when the geologic investigations have been completed; it has just begun. In translating geology into economics, no machine will assist geologists to read into the geology the practical application of it. Geologists have only their experience, knowledge, theories, reasoning powers and imagination to guide them. In other words, their only tool is the head.

Imagination's Role

The choice of areas to investigate and the choice of geologic anomalies to drill are two of the most serious economic problems in the search for oil and gas fields. In attempting to solve these problems, geologists draw heavily upon their knowledge of the geology of known oil and gas accumulations. It helps considerably to possess worldwide knowledge. It is not far-fetched to state that a geologist can find more oil in Michigan, for instance, if he understands the geology of the oil deposits of a remote area like Iran. This knowledge of the past, however, is inadequate. Something must be added, and this something springs from the imagination. It takes imagination to apply the one fundamental principal governing the occurrence of oil and gas deposits;—namely, that important deposits of oil and gas occur only in traps in permeable rocks in sedimentary sections that are mainly marine in origin. What are traps? They are any kind of geologic anomaly that can hold oil and gas. One cannot forecast accurately the kind of structural anomaly it takes to hold oil and gas in a given area, cannot forecast accurately the underground stratigraphic and structural changes that may form or assist to form a trap, and cannot forecast precisely the probable producing formations. The next great oil or gas field may well be stratigraphically and structurally quite unlike any presently known pool.

The unimaginative appraisal of the economic significance of geology in the light of the past—orthodox economic appraisal—leads to mental condemnation of those geologic anomalies that are unlike those upon which nearby or remote oil and gas fields are located. The libraries and files of surveys, companies and individuals are full of geologic data indicating a number of good prospects mentally condemned as of this date. Any geologist at any time may see one or more fields or new petroliferous provinces in these libraries of files by the not altogether simple process of tearing himself away from orthodox economic appraisal of the geology and adopting a fresh viewpoint. The more imaginative geologist can achieve this fresh viewpoint; the less imaginative achieve it, if at all, with difficulty.

Most geologists can draw upon their experience and prepare a rather imposing list of oil and gas fields located in areas where oil and gas were not supposed to exist, or located on anomalies known to many but mentally condemned by all but a few or all but one geologist. In attempting to analyze such a list, I reach the conclusion that the geologists responsible for the discoveries had controlled imagination, and pushed the use of it, while their competitors were complacently hiding behind the screen of orthodox economic appraisal, styling themselves practical men. These competitors thought they knew, among other things, that a certain number of feet of closure was necessary, that certain formations could not produce, that a county line or river separated the good and bad areas, that a certain area might produce gas but certainly not oil, and that the rims of certain basins might be good but certainly not the bottoms. In short, they knew where the oil was not, and built mental walls around these supposedly undesirable areas in order to contain their efforts and money in the supposedly desirable areas. The oil finders, recognizing the impractical procedure of applying a little knowledge unimaginatively to the solution of so vast a problem, merely adopted the truly practical procedure of drilling those geologic anomalies which stood the test of their own interpretation of the economic significance of the geology. The oil finders, directing their mental efforts to developing reasons for the presence of oil and gas pools, were positive thinkers. The non-oil finders, directing their mental efforts to developing reasons for the absence of oil and gas pools, were negative thinkers.

Salesmanship—The oil finders do some things else. They sell themselves on their interpretations and in turn sell their ideas

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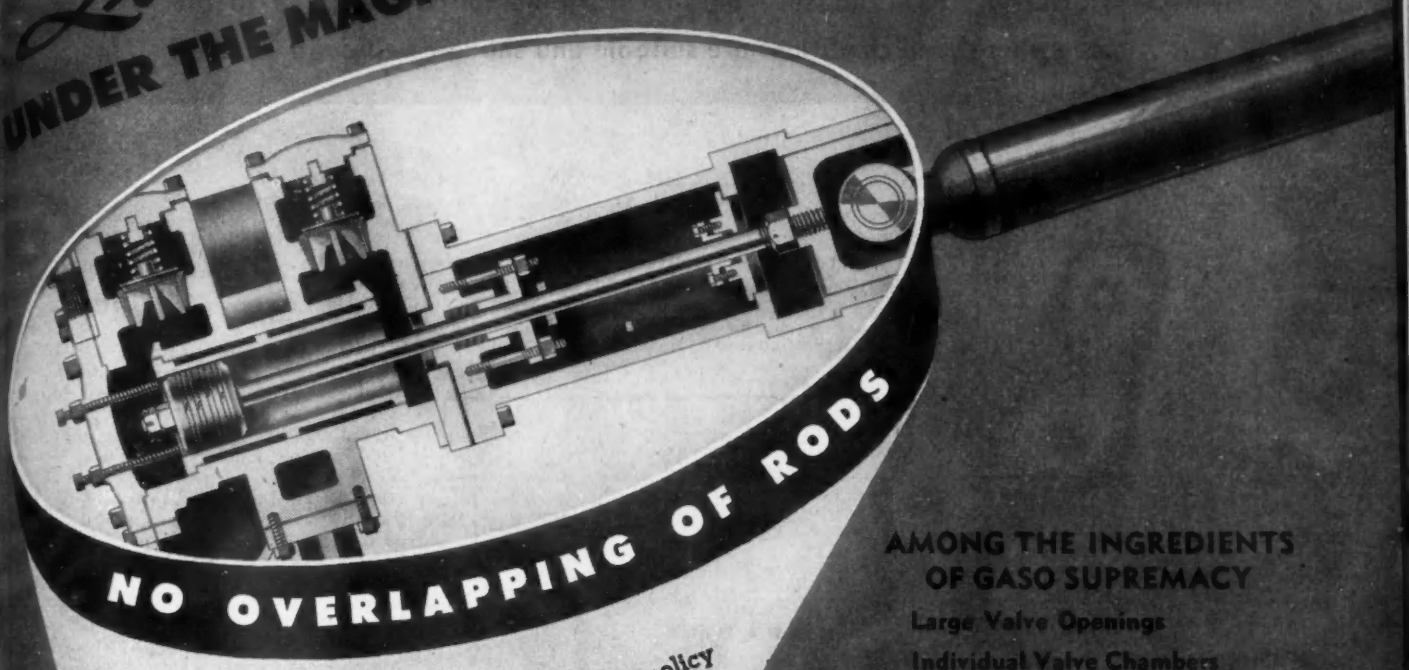

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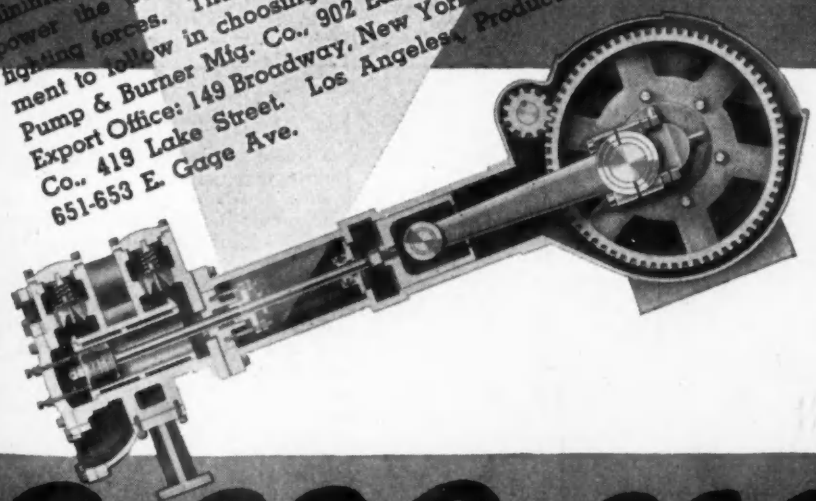

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Water Flooding in Oklahoma

Started in 1931, this secondary-recovery method is restricted to the area where sand conditions are suitable and shallow well depths prevail

By DAVID M. LOGAN, Petroleum Engineer

INJECTION of water under pressure into depleted oil formations where the original energy has been dissipated is becoming one of the most successful methods in secondary-recovery practices. Where conditions favor this method the action of the water injected into sands where most of the primary oil has already been recovered from gas-expansion type reservoirs results in economic recovery of oil which would otherwise be lost. Millions of barrels have been brought to the surface through water-flooding.

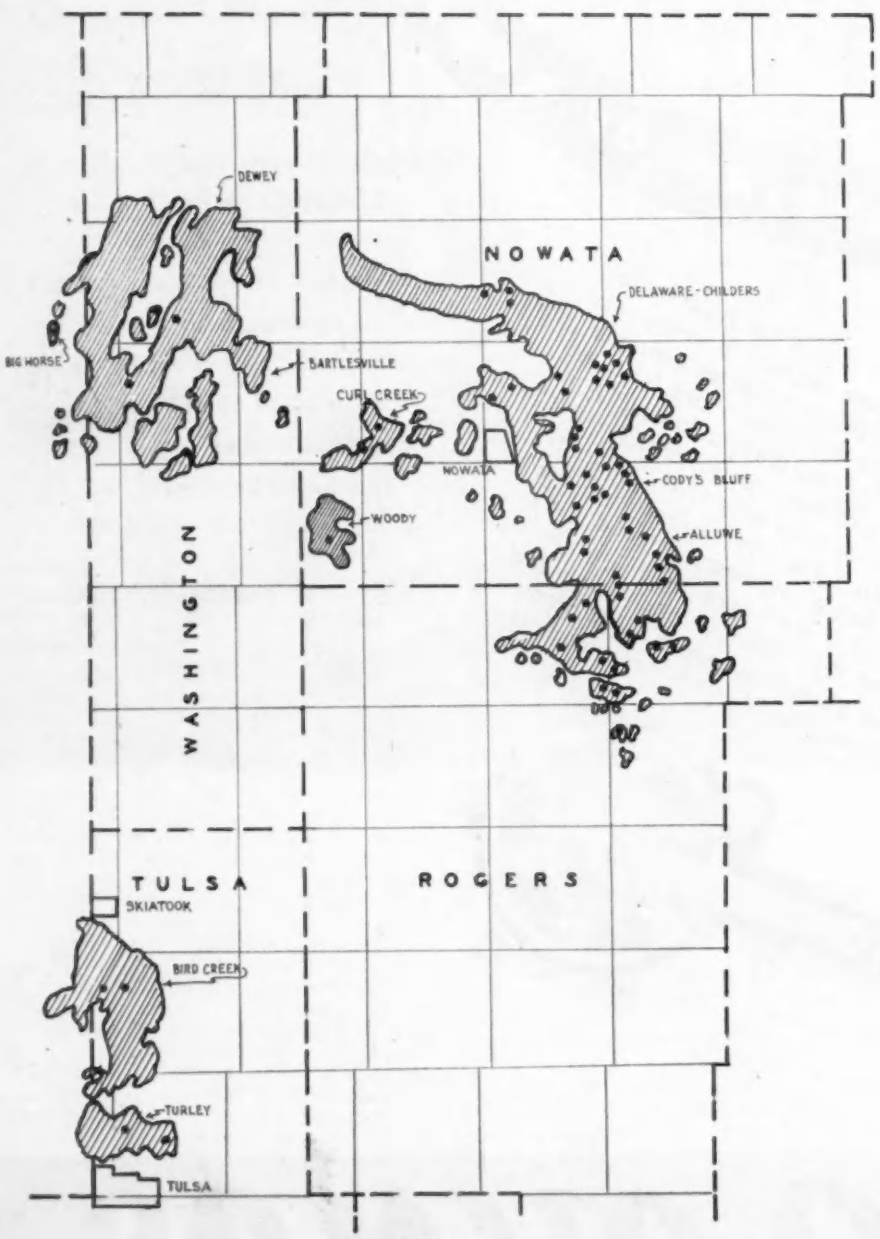

FIGURE 1
Principal water-flood projects in northeastern Oklahoma.

Just when the practice of injecting water under pressure into depleted oil sands first started is not clear but records of more than 40 years back reveal that sporadic water-flooding was being tried out in Pennsylvania and western New York. The practice at first was considered harmful and early water-flooding was done surreptitiously. Only as late as 1921 was the practice officially recognized as good engineering and in that year Pennsylvania passed a law legalizing water-flooding methods. Since that time the method and its application has undergone rapid improvment and it is estimated that in Pennsylvania and New York alone more than 200,000,000 barrels of oil have been recovered by this method since 1921.

Systematic water-flooding as practiced today requires such close spacing of wells that certain important factors must be considered in order to achieve economically satisfactory results. In Oklahoma, where water flooding was first started in 1931, operators have confined the method to a more or less restricted area where sand conditions are suitable and where shallow depths prevail. This area comprises the Delaware-Nowata-Chelsea district of northeast Oklahoma where the Bartlesville sand is at depths ranging from 350 to 750 feet and has afforded an opportunity for the development of water flooding at reasonable cost. Of the 73 flooding projects in Oklahoma 58 are in this general area. Figure 1 shows the location of the principal water-flooding projects in the state.

Bartlesville Area

In the area around Bartlesville, the Bartlesville sand is encountered at its lowest depth of approximately 1250 feet. The formation is found at progressively shallow depths as it trends eastward toward the Verdigris River where it is found at an approximate depth of 500 feet, lensing out in spots. This trend represents a fairly continuous productive area extending 15 to 18 miles north into Nowata County and 10 to 12 miles to the northwest. The Bartlesville sand is a member of the Cherokee shale series of the lower Pennsylvanian. In the vicinity of Bartlesville the sand is reported as a thick sand but toward the east it splits up into streaks. Most of the large production has been from the main pay with the upper, or stray sands producing little oil and gas. In many sections the sand is divided by a

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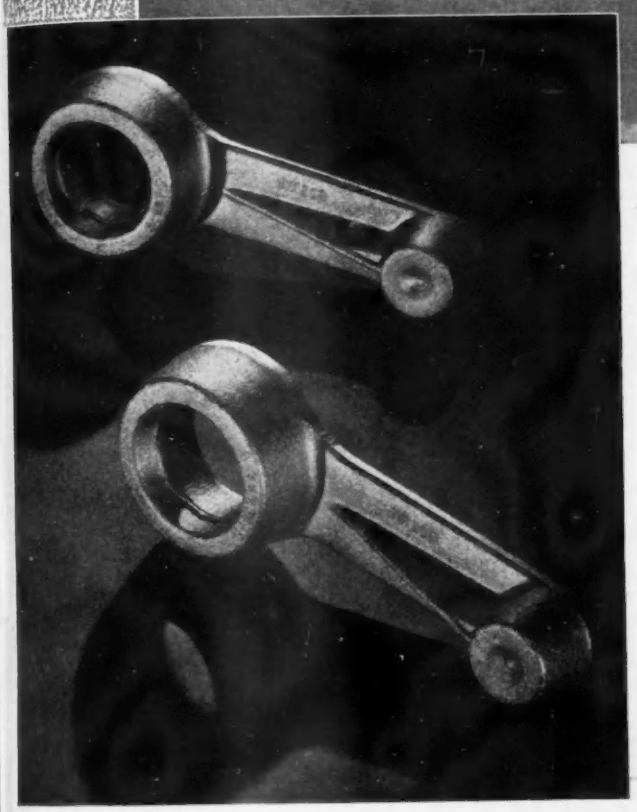

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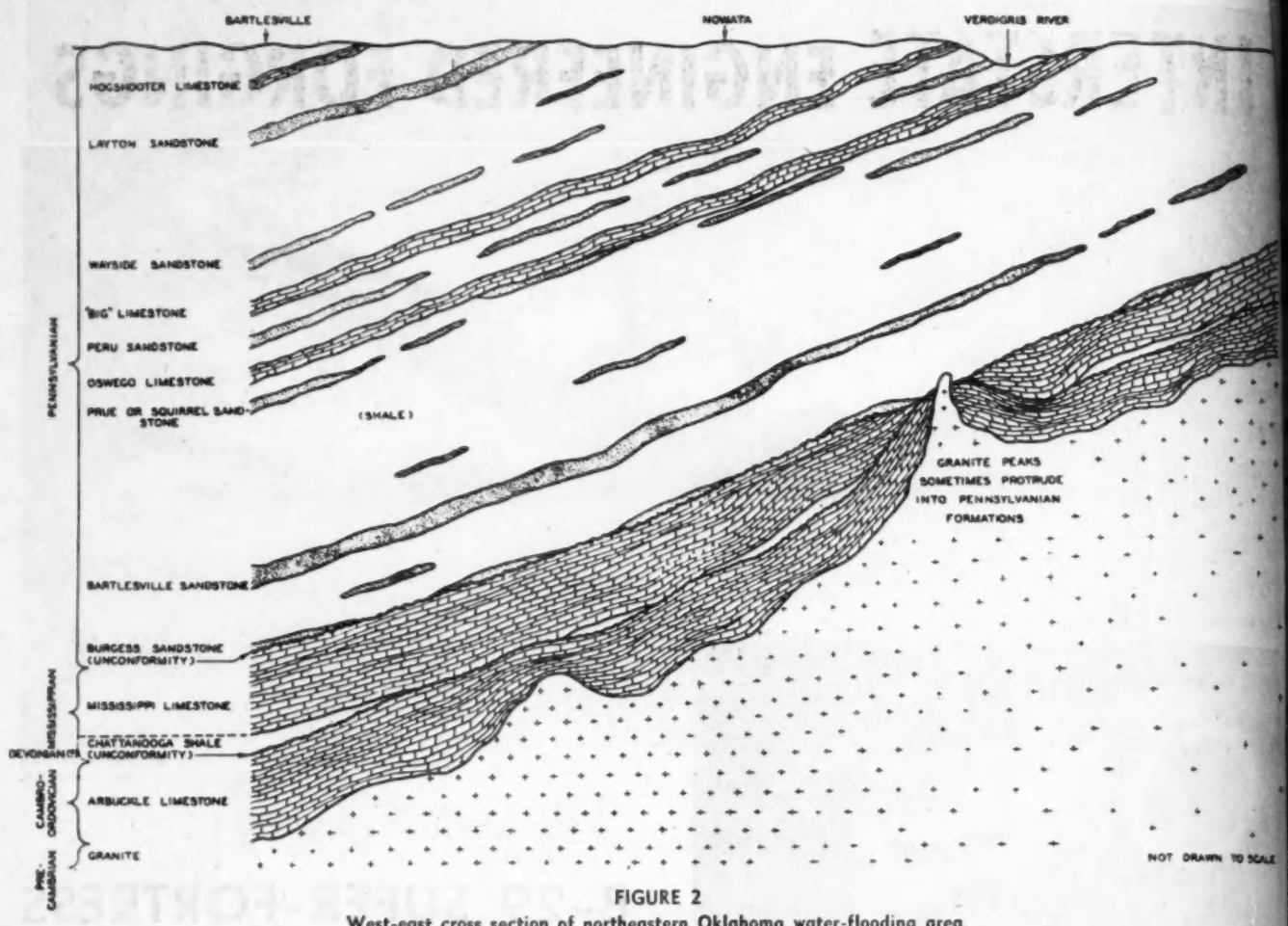

FIGURE 2

West-east cross section of northeastern Oklahoma water-flooding area.

shale break several feet in thickness at some places. The formation above the shale break contains little oil and gas and is usually cased off to prevent "thieving". Sometimes the sand thins out to a feather edge or is displaced by shale but it usually ranges in thickness from 15 to 55 feet and averages about 30 feet. (Figure 2).

The Bartlesville sand varies in depth from 365 feet on the Jenson lease, 31-24n-17e in Rogers County, to about 785 feet, in the vicinity of the Harmon lease, 29-27n-16e, Nowata County.

The Bartlesville sand has a porosity of from 15 ot 25 percent and average permeability when efficiently flooded with water is about 60 millidarcys with lenses often checking as high as 200 and sometimes 400 to 500 millidarcys. Average saturation of cores taken in the area are 23, 29, and 44 percent (Figures 3, 4, 5). Unshaded areas under first and second curves in these figures show the volume of recoverable oil by water flooding as indicated by laboratory tests. Graphs show that any attempt to flood the sand represented by the analysis in Figure 3 would result in failure due to the small volume of recoverable oil contained in the sand; recoverable oil content represented by Figure 4 would offer a fair chance of success while water flooding of sands represented in Figure 5 would prove a profitable operation if other field conditions are favorable.

Five-Spot Plan Used

All systematic water flooding operations in Oklahoma employ the five-spot arrangement of well spacing with a producing well located in the center of a square and surrounded by four intake water wells. When this pattern is followed out over an entire lease the number of producing wells about equal the intake wells because the intake wells in one pattern also serve the adjacent patterns. Where operators of adjacent properties cooperate in a water flooding project rows of intake wells are usually drilled along property lines, operators sharing cost of drilling and operating the wells. Where adjoining property owners decline to cooperate in the project, operators usually drill the first row of wells one location away from the property line or even two lines of wells, using them as producing wells and then drop down to follow the regular five-spot pattern beginning with the third row of wells.

Wells are usually spaced 330 feet apart although on a few projects they are spaced 440 feet. On properties producing from greater depths the wells are spaced farther apart for economical considerations. On the Harmon lease in Nowata County where the average depth of the sand is 785 feet, wells are spaced 440 feet apart and the operation has been one of the most successful in Oklahoma, recovering better than 7100 barrels of oil per acre. In areas where permeability differs, the 330-foot spacing prevails in the direction of low permeability and 440-foot spacing in the other direction.

Old wells on a lease which is to be water-flooded are generally ignored by Oklahoma operators in laying out a pattern and are either permitted to produce until "watered out" or eventually plugged when development begins. If an old well fits in with the well pattern it is generally reconditioned and used as a producing well but seldom as an intake well as most operators agree that an old well does not make a satisfactory water-intake well. There are a few small properties being water-flooded by operators financially unable to set out a proper well-spacing pattern which involves the drilling of new wells, and they use old producing wells, generally not uniformly spaced, as intake wells, or have drilled a few new wells among old producers to serve as intake wells. These operations have not proved very satisfactory but fortunately from the standpoint of oil recovery, the total acreage involved in such operations is small.

Delayed-Drilling Principle

Where there is a wide range in sand permeability and operators are financially able to do so, they use the "delayed-drilling" principle in water flooding. Setting out a unit pattern, intake wells are drilled first and water is forced through the sands for from two six months before the producing wells in the pattern are drilled. By this method the voids in the more permeable sections of the producing sands are filled with fluid forcing the oil to the center of the pattern. Operators using this method in Oklahoma include the Thornton Company, Wellsville Oil Company, Forest Producing Corporation, and Alluwe Oil Corporation.

Water-intake wells in Oklahoma are usually completed without casing using only a 20- to 40-foot section of drive

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pipe as surface pipe. The practice causes some inconvenience in making repairs but as a rule the cost of making such repairs is less than the cost of a complete string of casing. Difficulty in procuring pipe during the war is also a factor in this method of completion. Phillips Petroleum Company engineers report an appreciable over-all saving in completing water-intake wells without casing.

In completing a water-intake well a strong section of 1½ or 2-inch tubing is lowered to the top of the sand or a few feet into the sand if the upper part of the sand is devoid of oil or exceptionally permeable. In some projects the diameter of the hole drilled is reduced at a depth corresponding to the length of tubing to provide a shoulder on which to set a swage nipple or flange attached to the bottom end of the tubing. Generally, however, the tubing is packed off with a burlap packer, but in either method the annular space about the lower end of the tubing above the nipple, flange or packer, is filled with five to fifteen sacks of cement. If heaving formations make it advisable to use a string of casing in drilling the hole, the pipe is removed after the tubing is run into the hole.

Practices of Operators

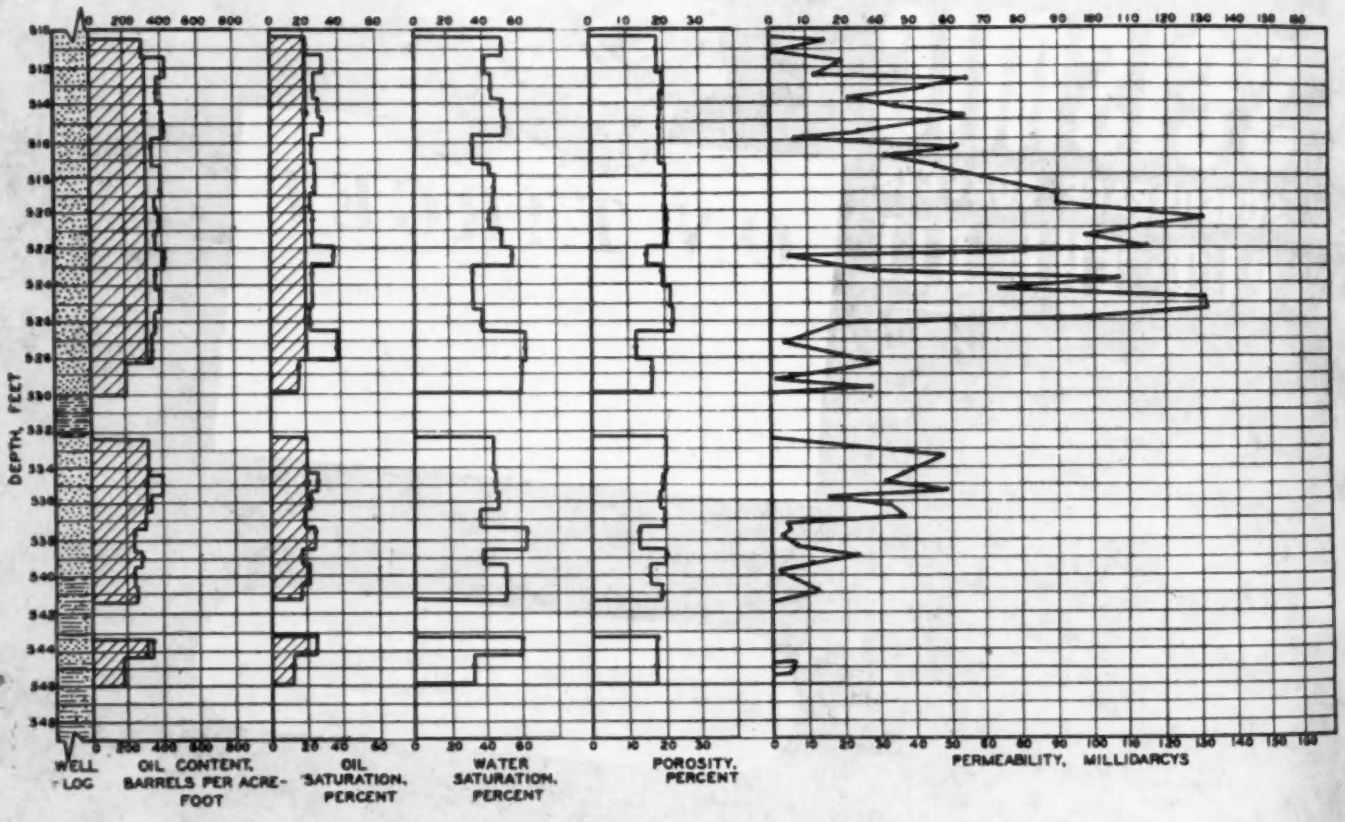
Producing wells expected to flow are completed in the same manner, but if they are to be pumped, a string of 6¼- or 6⅝-inch casing is set and cemented on top of the pay to prevent escape of oil and as a water shutoff. In the Nowata area some operators have found it unnecesary to cement the oil string. Phillips Petroleum Company set 4½-inch pipe in about 100 producing wells on its Codys Bluff project but other wells in the Nowata area are equipped with a 2-inch producing string with a burlap packer and a parallel string of ½-inch pipe, both of which are set on top of the sand and cemented with five to ten sacks of neat cement. The tubing is equipped at the lower end with a common working barrel. The ½-inch pipe serves to vent gas from the hole and prevents the pump at the end of the tubing string from becoming gas-locked. Working barrels seldom have to be replaced but leaky tubing is either removed or repaired by forcing cement into the annular space behind the tubing. If necessary, a ¾- or 1-inch liner string can be run to bottom with a pony packer and the production can be flowed. Phillips & Milam use 4-inch casing in their producing wells on their projects in Nowata and Rogers counties.

Corrosion of tubing has caused considerable expense to operators in water-flooding projects in Oklahoma and frequently tubing corrodes so badly after two or three years that it is necessary to continually replace badly pitted or holed sections. Corrosion troubles are sometimes overcome by the use of cement-lined tubing which, in the case of second-hand 2-inch tubing, can be lined with cement at a cost of approximately six cents a foot, or less in the case of new pipe. Forest Producing Corporation, Barnsdall Oil Company, Phillips & Milam, G. E. Woodard and many other operators are using cement-lined tubing with satisfactory results.

In order to increase their effectiveness, water-intake and producing wells are usually "shot" with nitroglycerine, the size shot depending on sand characteristics with the producing wells shot more heavily that the water-intake wells. The average shot is 1⅓ quarts of nitro perfoot of sand in producing wells and 1 quart per foot of sand in water-intake wells.

Problem of Water

The source of water for flooding oil sands is important because it takes nearly 40 million barrels per year to produce the estimated 3 million barrels of oil recovered annually. Oklahoma operators constantly face a water shortage or must use water of inferior quality in water-flooding projects since the area is served only by the Verdigris River and its tributaries which are inadequate especially in the summer months. There are 39 projects using water from this source in the area. During the winter months the streams are turbid and the water must be treated for the removal of suspended material while methods of treatment must be changed frequently to correspond with flood stages of the rivers and creeks when the amount of suspended materials in the water varies. Other water sources used in flooding operations in Oklahoma include the Arkansas River, shallow fresh-water wells, ponds, water produced with the oil, municipal water systems and water from the Arbuckle limestone, Oswego limestone and the Salt sandstone formations. Because of its constant supply throughout the year water from the Arbuckle limestone is being used in increasing amounts while it has the further advantage of requiring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WELL LOG
OIL CONTENT, BARRELS PER ACRE-FOOT
OIL SATURATION, PERCENT
WATER SATURATION, PERCENT
POROSITY, PERCENT
PERMEABILITY, MILLIDARCYS
NOTE: SHADED AREA ON OIL-SATURATION CURVES REPRESENTS OIL THAT COULD NOT BE RECOVERED BY WATER-FLOODING OF THE CORE IN THE LABORATORY.

FIGURE 3

Analysis of a Bartlesville sand core from well in 36-26n-16e, Nowata County, Oklahoma. (Formation legend: dotted sections represent sandstone, dashes indicate shale, and dot-dash, sandy shale.)

Note, this chart as well as charts for Figures 4 and 5, are used through the courtesy of Geologic Standards Company, Tulsa.

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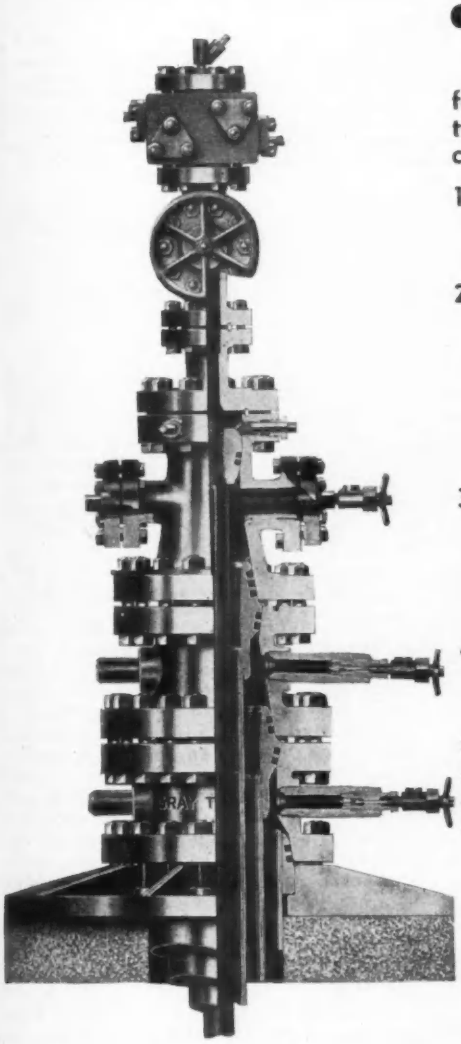

FIGURE 1A

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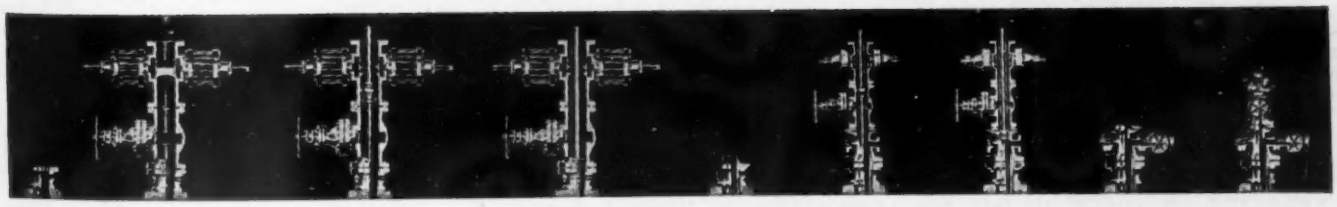

Casing Head Attached | Drilling | Running Casing | Casing Landed | Drilling Control Equipment Removed | Drilling-in and Running Tubing | Tubing Landed | Control Equipment Removed | Manifold Attached

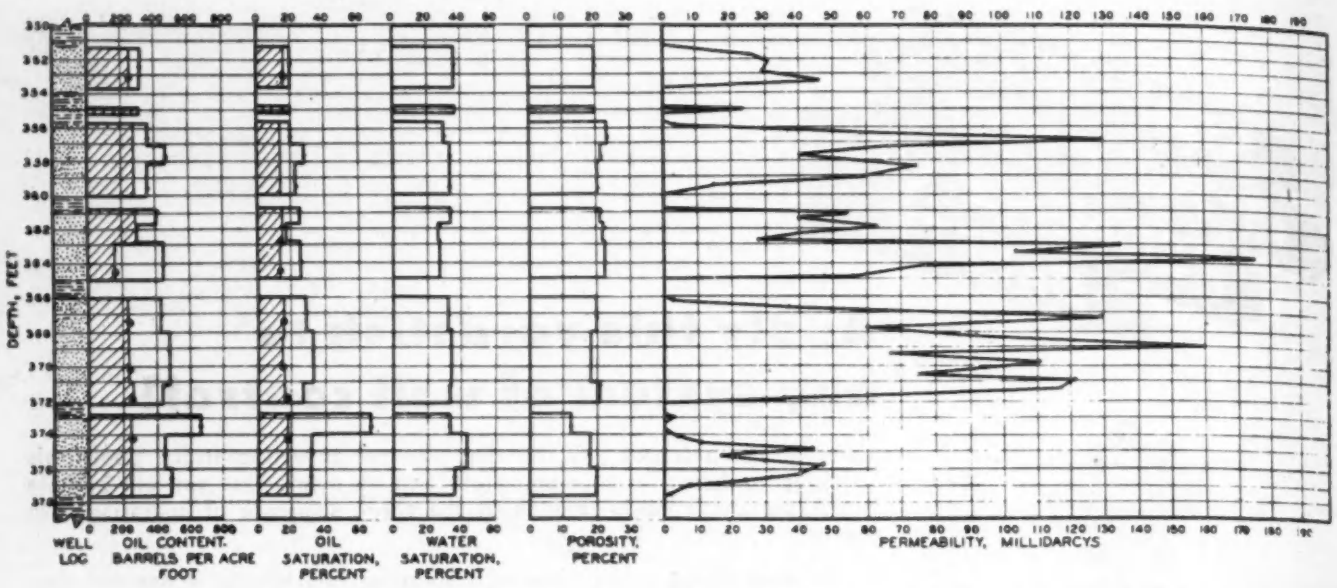
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FIGURE 4

Analysis of a Bartlesville sand core from well in Twp. 24n-17e, Rogers County, Oklahoma. (Formation legend: dotted sections represent sandstone, dashes indicate shale and dot-dash, sandy shale.)

uniform treatment once the proper method has been determined. However, regardless of uniformity in quality, most operators recycle produced water so that the treatment must be varied occasionally, depending on the quantity of produced water returned to the sand and its composition.

Water is usually treated in open tanks. If it contains hydrogen sulphide, it is first aerated over a pond or open tank and the incoming water or water from producing wells flowed into the tank or pond which also serve as a preliminary settling basin or reservoir. The water is then pumped into a baffled treating tank where chemicals are added, generally alum and hydrated lime as stabilizing and coagulating agents. These are added by a mechanical proportioning device housed on top of the tank. Chlorine, chlorinated lime or copper sulfate is also used to control organic growth at most treating plants. From the treating tank the water passes through a sand filter, the majority of operators using the closed-type, and from the filter into a "clear-well" tank from which it is pumped by a high-pressure triplex or centrifugal pump into the input wells. The quantity of chemicals required for treating different waters varies widely and depends on the composition and quantity of returned salt water treated or on the varying quantity of suspended matter present if the water is derived from a pond or stream.

Rate of Injection

The rate of water injection is controlled by the maximum injection pressure that can be used safely and without causing a "break" in the sand which is noted when the returned water is laden with silt. This condition usually can be corrected by releasing the pressure and then allowing it to build up slowly and subsequently maintaining it at an intensity that is below critical pressure. In the Nowata area the critical pressure has been found to be 1½ to 2 pounds per square inch per foot of depth, so that for a sand 500 feet deep the operator should not maintain a surface pressure much above 500 or 600 pounds per square inch in order to avoid damaging the sand. In Oklahoma the average daily rate of water injection into sands being flooded ranges from 1 to 3 barrels per foot of oil-bearing sand.

It is general in the Oklahoma water-flooding area to pump wells continuously. If they are pumped only part time the sand face should be pumped free of fluid at least two or three times a day. Some operators use individual electric pumping units equipped with automatic time switches and where such units are used, the timing device is set so that the well "pumps off" several times daily. A few operators are flowing producing wells. This eliminates the necessity of casing, pumps and rods, etc., and results in more economical operation. On the other hand less oil is produced by flowing than by pumping and some engineers contend that maximum recovery in water-flooding operations is best obtained by pumping oil-producing wells.

Engineers of the Forest Producing Corporation which advocates the flowing method, determine the potential of each well and allow the wells to produce each day only long enough to make their potential for 22 hours. In this way the daily producing period for each well is reduced gradually so that each is shut in several hours daily. The pressure on the sand thus is increased each day during the shut-in period and then reduced as the wells flow. This practice of shutting in and flowing the wells, combined with the delayed drilling of the producing wells when a water-flooding project is being developed, will result in the recovery of a greater quantity of oil per acre than can be obtained by pumping, in the opinion of company engineers. Many operators who favor the pumping method during the early life of a water-flooding project arrange their flooding operations toward the end of its economic life so that the wells will flow their production, thus reducing operating costs and extending the economic life of the project.

Frequently an operator on one property is foced by practices of an offsetting neighbor to pump some of his wells when others are to be flowed. If an operator desires to flow his wells when wells on an adjacent property are being pumped, it is necessary for him to pump his edge row of producing wells to prevent oil from being forced across the property line to the neighbors wells.

Central Power Units

When individual pumping units, such as above described are not being used, water-flooding projects are pumped from a central power station. Costs of pumping with central powers are usually higher than when individual units are used because the engine of a central power must operate until the last well pumps off. Furthermore, toward the end of the economic life of a water-flooding project the central power must still be operated although most of the wells have been watered out and are no longer producing. Individual pumping units, although high in initial cost, are perhaps more economical in the long run and certainly provide greater flexibility in operation.

Water-flooding operations are producing approximately 3,000,000 barrels of additional oil per year in Oklahoma. The volume of oil produced by water flooding has increased rapidly since the first project was pioneered in 1931 and this method reached a peak production in 1940 amounting to 3,665,580 barrels. Since the war there has been a levelling off in water-flooding operations in the state due primarily to scarcity and increased cost of labor and supplies and because of the low price of oil. Before the cost of labor and materials began their upward climb, the average cost of developing a water-flooding project in Oklahoma with wells spaced 330 feet and producing from a depth of 500 feet exceeded $1000 an acre. With the increased cost of development many properties which otherwise might have been considered profitable ventures are now uncertain risks and attempts to water-flood are being deferred until the price

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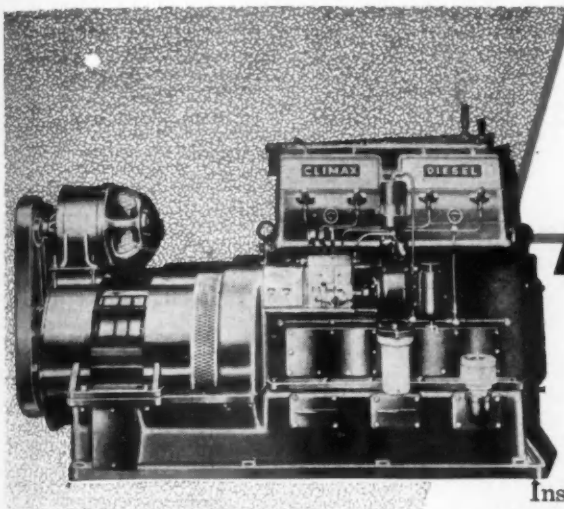

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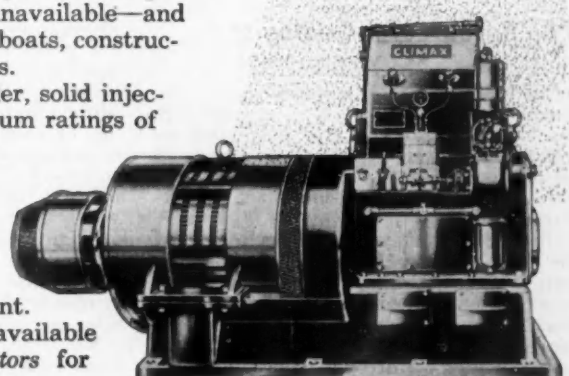

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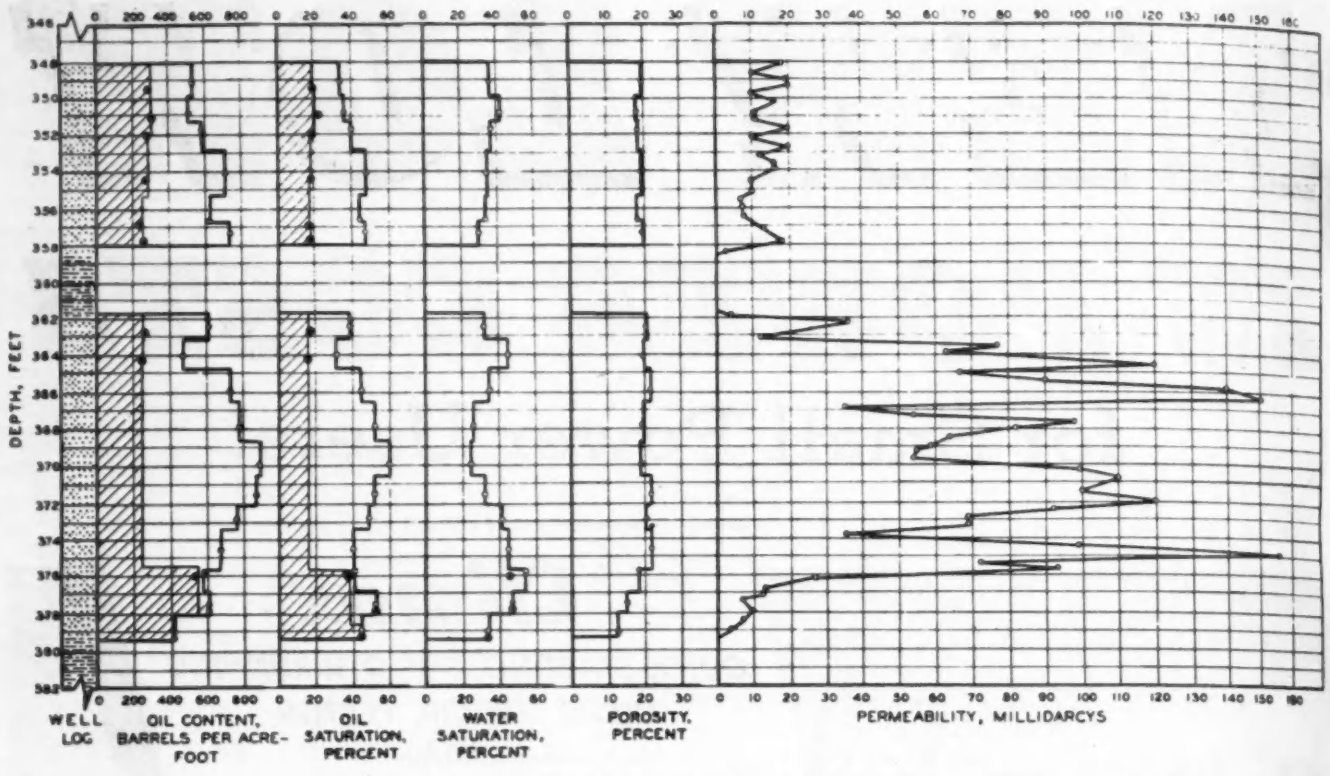
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FIGURE 5

Analysis of a Bartlesville sand core from well in Twp. 24n-17e, Rogers County, Oklahoma. (At left, dotted portions represent sandstone, dashes shale, and dot-dash, sandy shale.)

of oil compares more favorably with the cost of labor and materials. Most of the operators engaged in water-flooding operations in Oklahoma are individuals or small companies, and collectively they hold a large percentage of the acreage that can be flooded profitably.

The average life of a water-flooding project in Oklahoma has frequently been estimated at about six years but many operations may expect a longer productive tenure judged from past experience. The Whitehill Oil Company project started by Bert Collins in 1931, was abandoned after it had produced for nearly 12 years and the H. J. Walter, Pumpkin Center, flood which was started in 1934, produced for about eight years. The long life of many water-flooding projects is due in part at least to the fact that they are developed over a period of years and those sections developed last continue to produce after areas developed earlier have been abandoned.

Since water-flooding was first introduced into Oklahoma in 1931, the various projects have recovered about 22,000,000 barrels of oil which otherwise would not have been produced. Subsidy payments for stripper oil have stimulated interest in future water-flooding operations and this method of secondary recovery will undoubtedly be influenced by increase in the price of oil, since many projects which cannot be operated economically at present low-price levels will become attractive as the market price of crude increases.

Acknowledgment

"History of Water Flooding of Oil Sands in Oklahoma"; R.I. 3728, United States Bureau of Mines, by D. B. Taliaferro and David M. Logan.

The Resourceful Geologist

■ CONTINUED FROM PAGE 38

to others capable of completing the discovery process. The loss of a good idea through poor salesmanship may postpone indefinitely the discovery of an important oil or gas field or new producing province. Salesmanship is the all-important follow-through.

The selling of geologic conclusions of the more imaginative variety admittedly calls for strong salesmanship. The potential buyers are frequently steeped in orthodoxy and inclined to place little trust in projects that depend heavily upon the human equation. Moreover, since geologic conclusions are tentative and subject to rapid change, geologists commonly find themselves in the position of having to unsell the potential buyer on an idea previously sold to him. The job of unselling is as big as the job of selling. Neither job can be done well if geologists have not translated their geology into economics, the language of the potential buyer.

There is definite need of selling more wildcats in the wide open spaces where geologic evidence may be thin but where the much needed new provinces may be waiting to be tapped. There is need for deeper drilling in producing provinces. More effective salesmanship on the drilling of more test wells in the search for stratigraphic traps or in the exploration of complicated structures is a necessity. The industry and geologists should be more widely sold on the idea that the drill is a geologic tool, a tool for gathering geologic information as well as a production tool. The burden of developing and selling an intelligent drilling campaign of the proportions needed rests upon geologists.

Resources and resourcefulness. We have them both in quality and quantity. They are equally important as national assets. However blessed our land may be with deposits of oil and gas, they must be captured before they are, in a practical sense, resources. Petroleum geologists lead the way in the initial phase of capture—exploration—and are playing an ever increasingly important role in the succeeding phase—exploitation. It is imperative, therefore, that their resourcefulness, although but one element of the industry's resourcefulness, be maintained at the highest possible levels.

The problems of pure and applied geology will continue to depend heavily upon the imagination for solution after the development of many new fact-finding devices, including those which may detect oil and gas accumulations directly. Hence petroleum geologists have no alternative but to develop further, and to employ fearlessly, controlled imagination in interpreting and applying their science. Furthermore, there is little choice but to be alert to the development of new geologic tools and concepts, to push to the limit the use of old and new tools and concepts, to acquire and apply worldwide knowledge and experience, to think positively rather than negatively, to fuse into all interpretations every scrap of earth data however obtained, and to evaluate thoroughly the economic implications of the geology. By increasing the resolving power of geology through the continuous improvement of geological resourcefulness, a greater and greater percentage of the nations' undiscovered reserve of oil and gas will be captured for the benefit of man.

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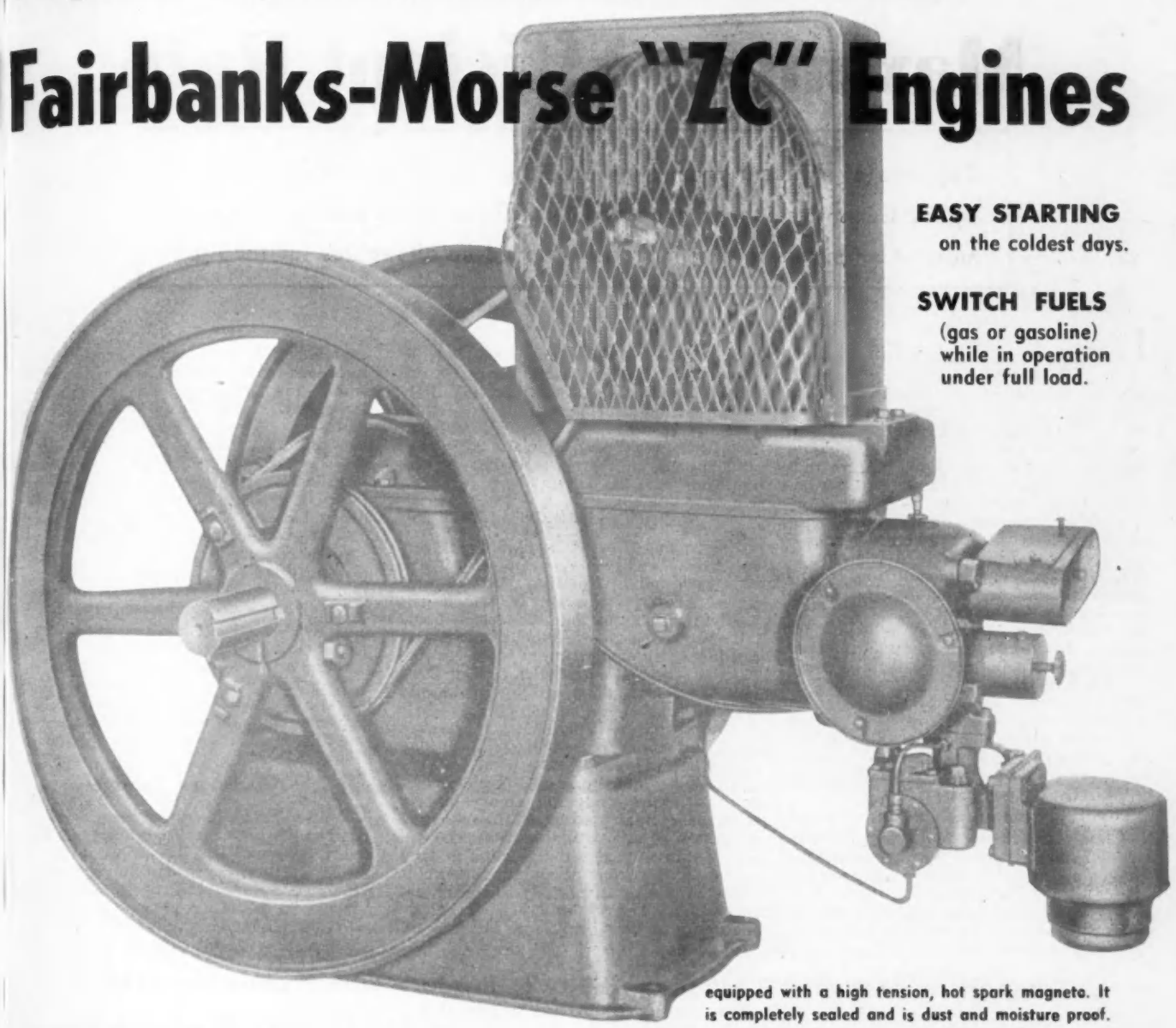

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District 3 Fields Exceed Maximum Efficient Rate

Top rate of efficient production based on March allowables is shown by Ivy Committee to be exceeded by 228,713 barrels daily with even more of an excess in prospect with stepped-up allowables set for April

UNDER the necessity of supplying crude oil in ever-increasing volume without proportionate development of new reserves, PAW District 3 as a whole finally has reached the bottom of the barrel of unused efficient producing ability. It was the only such reserve that heretofore remained available to the nation. During the current 6-months' period, March-September, 1945, the maximum efficient rate at which District 3 can produce on a sustained basis is 2,690,131 barrels daily, according to the latest report of the subcommittee on reserves and development for the Production Committee of District 3, headed by John S. Ivy, of Houston. This indicated top rate of efficient production is being exceeded by the substantial amount of 228,713 barrels daily on the basis of March allowables, and will be exceeded even more under the further stepped-up allowables of April. (For PAW certifications for April see THE OIL WEEKLY of March 26, page 31.)

The Ivy Committee's report showed that daily producing ability of District 3 had been increased by the relatively small amount of 50,000 barrels since issuance of the corresponding report last July. But this gain was far short of the step-up meanwhile in demand for crude from the district, current allowables being approximately 300,000 barrels a day above production at mid-year, 1944. Even at that time District 3 as a whole was producing within about 25,000 barrels of its maximum efficient daily rate, and shortly thereafter it began exceeding that rate.

Ability Gradually Used Up

The using up of available efficient producing ability has been steady and uninterrupted in bringing District 3 up to its present situation in which virtually every state and district is being called upon for more oil than it can produce without detriment to reservoirs. Against the present deficiency of 228,713 barrels in daily producing ability and the excess of 25,000 barrels daily at the middle of 1944, District 3 had an excess of about 165,000 barrels per day at the beginning of 1944.

These former excesses and current deficiencies in producing ability largely reflect the final stages of the wartime using up of all available potential, in which stage the possibilities for getting more oil narrowed down almost exclusively to Texas and finally to individual districts of Texas. As far back as the beginning of 1944 Louisiana, Mississippi, and New Mexico were exceeding their indicated maximum efficient producing rates, and Arkansas was close to its limit, but most Texas districts still had some excess of producing ability. By the middle of 1944, however, most of the Texas districts likewise were overproducing, and only West Texas-New Mexico and Eastern Texas had nonutilized capacity. Today there is no excess of efficient producing ability in any state or major subdivision thereof throughout PAW District 3 with exception of insignificant surpluses in stripper-well areas of Arkansas and North Louisiana.

District 3 currently accounts for 60 percent of all United States production, having been called upon for larger and larger proportion of the nation's requirements, as other districts earlier reached the limits of their producing ability.

No Serious Damage

While the build-up since mid-1944 in District 3 producing ability has been relatively small and not in proportion to the sharp increase in demand and actual production, there has been noteworthy success in avoiding serious damage to any individual fields and wells. This de-

Comparison of District 3 Trend in Ability to Produce with Production Rates

(ALL FIGURES IN BARRELS PER DAY)

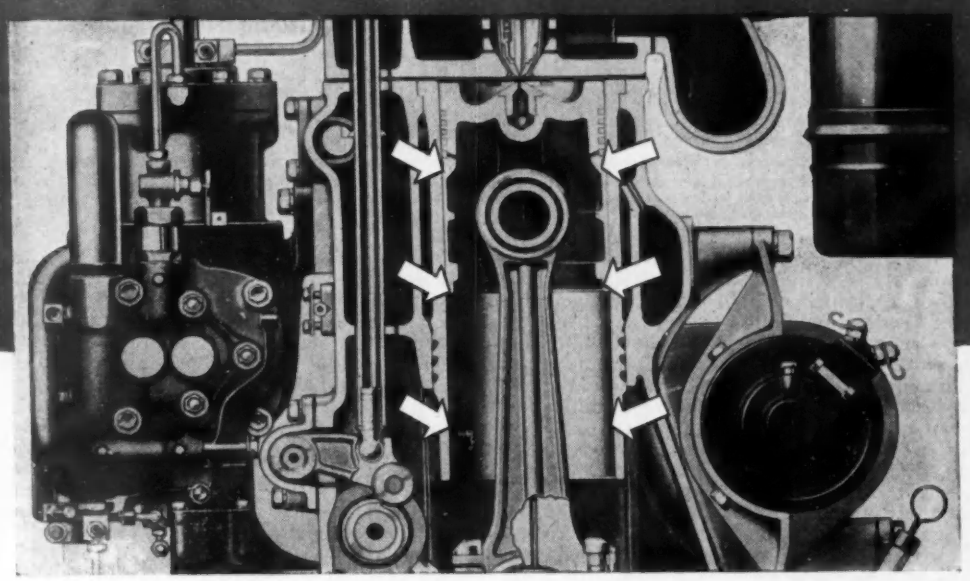
STATE OR DISTRICT	COMMITTEE DETERMINATION OF ABILITY TO PRODUCE*			DAILY CRUDE PRODUCTION				COMPARISON OF ABILITY DETERMINATION WITH PRODUCTION			
	December, 1943	Six Months July-Dec., 1944	Six Months Mar.-Sept., 1945	December, 1943	June, 1944	January, 1945†	March, 1945 Allowable	Dec., 1943 Ability vs. Dec., 1943 Production	July-Dec., 1944 Ability vs. June, 1944 Production	Mar.-Sept., 1945 Ability vs. Jan., 1945 Production	Mar.-Sept., 1945 Ability vs. Mar., 1945 Allowable
Alabama	.....	300	225	.....	100	368	368	.....	+200	—143	—143
Arkansas	72,020	69,364	71,670	71,156	80,900	72,383	78,685	+864	—11,536	—713	—7,015
Uncontrolled	19,565	17,960	18,590	17,388	.....	18,498	18,498	+2,177	.....	+92	+92
Controlled	52,455	51,404	53,080	53,768	.....	53,885	60,187	—1,313	.....	—805	—7,107
Louisiana	338,575	336,799	345,313	347,800	354,200	344,642	380,011	—9,225	—17,401	+671	—34,698
North Louisiana	59,995	55,429	62,491	68,100	66,000	61,730	74,376	—8,105	—10,571	+761	+761
South Louisiana	278,580	281,370	282,822	279,700	288,200	282,912	305,635	—1,120	—6,830	—90	—22,813
Mississippi	36,342	40,070	45,435	44,900	43,200	49,327	49,327	—8,558	—3,130	—3,892	—3,892
New Mexico	101,884	109,344	106,013	112,746	105,500	103,161	112,461	—10,862	+3,844	+2,852	—6,448
Northwestern	1,112	1,067	1,250	1,238	.....	1,326	1,326	—126	.....	—76	—76
Southeastern	100,772	108,277	104,763	111,508	.....	101,835	111,135	—10,736	.....	—2,928	—6,372
Texas	2,068,382	2,084,637	2,121,475	1,876,220	2,031,704	2,137,205	2,297,992	+192,162	+54,000	—15,730	—176,517
District 1	22,186	21,226	21,858	21,416	22,379	21,703	24,936	+770	—1,153	+155	—3,078
District 2	137,270	138,069	147,232	132,830	143,636	155,912	166,140	+4,440	—5,567	—8,680	—18,908
District 3	477,621	476,451	506,660	471,616	492,487	508,931	557,458	+6,005	—16,036	—2,271	—50,798
District 4	176,354	183,738	197,070	174,961	188,196	205,332	221,201	+1,393	—4,458	—8,262	—24,131
District 5	43,431	42,776	43,309	35,497	40,558	42,220	44,556	+7,934	—2,218	+1,089	—1,248
District 6	482,861	487,240	489,969	455,389	455,183	485,875	492,473	+27,472	+32,057	+4,094	—2,504
District 7-B	23,931	25,601	27,634	25,937	27,164	27,694	32,069	—2,006	—1,563	—60	—4,435
District 7-C	23,217	23,024	23,480	18,157	19,635	21,623	24,034	+5,060	+3,389	+1,857	—554
District 8	486,491	486,689	457,124	334,970	431,772	456,188	489,852	+51,521	+54,917	+936	—32,728
District 9	105,020	112,203	116,659	115,709	118,483	121,642	139,615	—10,689	—6,280	—4,984	—22,956
District 10	90,000	87,620	90,480	89,738	92,211	90,084	105,658	+262	—4,591	+396	—15,178
Total United States	2,617,203	2,640,514	2,690,131	2,452,822	2,615,604	2,707,068	2,918,844	+164,381	+24,910	—16,955	—228,713

* Represents average sustained rate for six month period.

† Latest period for which actual production available, and therefore necessarily basis for comparison.

PORUS-KROME

protects the wear-zone



The greatest wear in Diesel and gasoline engines is on the cylinder walls in the zone traveled by the piston and rings. Corrosion from the products of combustion, and heat, and abrasion, and the difficulty of adequate lubrication all contribute to the rapid wearing of the cylinder wall.

These contributors to short life in cylinder bores cannot be eliminated, but their results can . . . by the application of PORUS-KROME.

PORUS-KROME is hard, pure chromium which is applied to cylinder bores by the patented Van der Horst process. It has tiny pores and channels in its surface which serve as reservoirs for lubricating oil, feeding it back to the surface as needed. It reduces corrosion and wear and multiplies cylinder life 4 to 20 times, and ring life 3 to 4 times.

Experience in actual use confirms test run and engineering laboratory results. Wherever continuous, hard service is required of an engine, PORUS-KROME assures greater engine reliability and lower maintenance costs.

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AN AFFILIATE OF DRESSER INDUSTRIES

Summary of Ivy Committee Classification of Fields in District 3

STATE OR DISTRICT	Number of Producing Wells			NUMBER OF FIELDS													
				Total[a]			With Most Wells Producing at Capacity			Producing at Inefficient Rate			With Little Development; Given Tentative Rate			Where Rate to Rise Due to New Completions in Next 6 mos.[d]		
	Dec., 1943	June, 1944	Mar., 1945	Dec., 1943	June, 1944	Mar., 1945	Dec., 1943	June, 1944	Mar., 1945	Dec., 1943	June, 1944	Mar., 1945	Dec., 1943	June, 1944	Mar., 1945	Dec., 1943	June, 1944	Mar., 1945
Alabama	0	6	9	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
Arkansas	2,961	3,122	3,169	33	38	38	15	17	17	0	0	0	0	2	2	1	4	3
Uncontrolled	2,426	2,508	2,537	14	14	14	14	14	13	0	0	0	0	0	0	0	0	0
Controlled	535	614	632	19	24	24	1	3	4	0	0	0	0	2	2	1	4	3
Louisiana	7,025	7,105	7,113	152	160	171	39	48	48	5	3	0	22	24	25	18	22[b]	51
North Louisiana	4,105	4,047	3,991	37	40	37	22	23	26	1	1	0	9	7	4	2	5[b]	6
South Louisiana	2,920	3,058	3,122	115	120	134	17	25	22	4	2	0	13	17	21	16	17	45
Mississippi	371	385	488	6	7	11	0	1	1	0	0	0	2	2	5	0	5	7
New Mexico	3,857	4,019	4,201	53	54	57	30	29	30	0	0	0	3	4	6	4	8	7
Northwestern	58	88	93	5	5	5	4	4	4	0	0	0	0	0	0	0	0	0
Southeastern	3,799	3,931	4,108	48	49	52	26	25	26	0	0	0	3	4	6	4	8	7
Texas	100,243	102,041	101,804	793	887	913	404	434	460	7	4	4	78	122	74	27	113	167
District 1	3,623	3,610	3,522	56	56	51	51	51	44	0	0	0	3	0	3	1	3	6
District 2	2,824	2,899	3,001	69	76	84	33	33	31	0	1	0	11	15	10	3	5[c]	14
District 3	8,107	8,182	8,146	148	159	163	42	57	56	6	2	3	14	22	15	7	21	28
District 4	7,970	8,142	8,293	158	180	196	56	68	78	1	0	0	8	13	15	13	32	44
District 5	1,755	1,763	1,753	22	23	27	18	19	17	0	0	0	2	1	5	0	1	5
District 6	27,519	27,287	26,933	32	34	36	15	15	13	0	1	1	7	9	6	1	9	10
District 7-B	6,896	6,942	7,033	69	76	72	55	57	57	0	0	0	0	5	2	0	6	7
District 7-C	1,296	1,308	1,349	28	29	24	19	19	18	0	0	0	0	1	0	0	4	2
District 8	14,377	14,951	15,866	101	124	126	43	43	52	0	0	0	13	21	6	1	16	32
District 9	20,053	20,239	20,027	109	127	130	72	73	93	0	0	0	20	35	10	1	15[b]	16
District 10	5,623	5,718	5,911	1	2	4	0	0	1	0	0	0	0	0	2	0	1	3
Total PAW District 3	114,457	116,672	116,784	1,037	1,137	1,191	488	529	556	12	7	4	105	154	112	50	153	236

[a] Some fields grouped together, in some cases as counties, particularly in Districts 7-B and 10 of Texas. In most cases each producing zone in field listed separately as individual pool. [b] Includes one field with most wells producing at capacity. [c] Includes one field that is producing at inefficient rate. [d] May include fields classified under other headings, usually with little development; given tentative rate.

sirable result has been achieved through coordination of the industry's activities, including the drilling of additional wells and the movement of crude from fields where available to refineries where needed. At present, consequently, there are fewer fields producing at inefficient rates than formerly; this being possible because there has been a steady increase in number of fields with majority of wells producing at capacity.

Similarly, development of the future is well planned, and there are now 236 fields in District 3 where producing ability is expected to increase within the coming 6 months. At the middle of 1944 only 153 such potential growing fields were indicated, and at the beginning of 1944 the number was but 50.

To aid in supplying the increased demand for petroleum from District 3, there has been fair success in finding and developing new fields. In its new report the Ivy committee showed 1191 fields currently productive, against 1137 at the middle of 1944 and 1037 at the beginning of 1944. The gain of 54 fields since mid-year 1944 having increased daily production ability about 50,000 barrels, it is indicated that for every field developed in the district, about 1000 barrels a day of producing ability was added, on the average.

Figures from the current and previous report also reflect the accentuated effort to develop new reserves through exploratory drilling, as the 50,000 barrels per day of addition to producing ability since mid-year 1944 occurred while the total number of producing wells increased only from 116,672 to 116,784, a gain of only 112 wells. For each net gain of 1 well in the total number of wells on production there was a gain of nearly 450 barrels per day in producing ability, on the average. Actually, of course, some new wells merely replaced depleted wells that were abandoned, substituting higher producing ability for small ability, with the remainder of the total gain in producing ability afforded by the potentials of new wells completed over and above abandonments.

Fields Whose Rated Producing Ability Changed More Than 500 Barrels Between June, 1944, and March, 1945

(Figures in Barrels per Day)

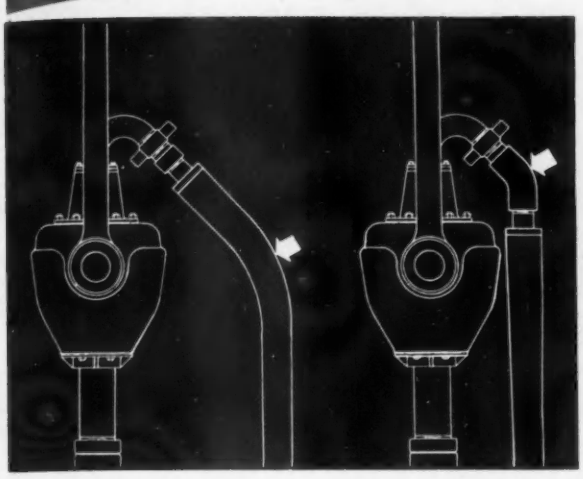
Field	March 1945 Ability	Change from June 1944
Arkansas:		
Atlanta	2,000	—686
Atlanta, West	1,200	782
Fouke	2,000	700
Haynesville, Pettit*	1,105	565
Magnolia (Limestone)	14,000	—1,000
Midway	7,300	800
Schuler, Cotton Valley	1,900	500
Schuler, Jones	9,000	—500
Village	2,500	—1,300
North Louisiana:		
Cotton Valley	475	—875
Haynesville, Pettit	7,000	—3,530
Holly*	1,000	600
Holly Ridge*	3,625	2,025
Lake St. John*	3,674	2,514
Rodessa	6,800	—700
South Louisiana:		
Anse La Butte	7,100	—600
Avery Island*	2,500	1,000
Bayou Sale*	7,700	700
Black Bayou	2,050	—550
Chacahoula*	1,800	—1,200
Chalkey	2,500	—500
Cheneyville	1,300	—700
Delta Duck Club*	1,000	900
Delta Farms*	7,500	1,400
Eola	7,400	—1,600
Erath*	2,500	2,200
Gibson	5,500	—500
Golden Meadow	7,000	—1,000
Grand Lake	2,000	—500
Hackberry, East*	4,400	—600
Iberia	6,000	—1,500
Iowa	8,000	—2,000
Jennings	7,300	—700
South Louisiana (Cont.)		
La Fitte	11,900	—1,100
La Pice*	1,500	600
Neale	6,500	—500
Paradis*	9,000	—1,000
Pine Prairie	5,000	800
Poanoke*	2,400	800
Venice	10,000	500
Ville Platte	7,000	—3,500
Vinton*	7,440	2,440
West Bay	3,500	700
Mississippi:		
Cranfield*	3,600	2,400
Eucutta*	3,300	2,300
Heidelberg	7,000	5,200
Pickens-Sharpsburg	6,000	1,000
Tinsley	24,000	7,000
New Mexico:		
Cooper	1,250	—400
Eunice	17,000	—1,250
Langlie	1,700	—400
South Eunice	1,700	—700
South Lovington*	2,600	850
Square Lake	3,000	—500
Vacuum	11,400	—2,000
Texas—District 2:		
Caesar, South*	2,100	500
Greta	10,000	1,000
Heyser	7,000	—1,000
Lolita	5,500	500
Maubro	2,000	500
McFaddin	5,000	—750
Slick-Wilcox*	4,200	1,700
West Ranch	22,000	2,000
Texas—District 3:		
Anahuac	32,000	—500
Bay City	4,300	—500
Bay City, North*	1,500	500
Blue Ridge	800	500
Clear Lake	4,000	—200
Conroe (Main Sand)	65,000	4,000
Fannett	5,300	800
Fig Ridge*	7,500	1,500
Hastings	65,000	5,000
Livingston, Wilcox*	1,050	850
Lovell's Lake	4,500	—500
Markham, N. Cornelius*	4,500	500
Needville*	600	550
North Withers	12,000	6,000
Red Fish Reef	2,000	500
Seabreeze*	3,000	1,500
Stowell*	17,350	8,350
West Columbia, New	5,700	600
Texas—District 4:		
Alta Mesa	1,500	500
Ben Bolt	1,700	—700
Flour Bluff	2,500	500
Garcia*	3,100	2,750
Government Wells, N.	4,500	—500
Hoffman	3,800	—700
Magnolia City, N.*	700	500
Plymouth	8,000	—500
Rincon, N.*	1,500	1,200
Seeligson (Zone 13)*	1,876	676
Texas—District 6:		
Cayuga	6,900	1,100
Chapel Hill	1,200	—600
Coke	2,000	—500
Kildare	900	—1,300
Long Lake	6,200	1,200
Manziel*	2,000	800
New Hope	5,000	2,900
Pittsburg*	1,500	700
Quitman	6,000	600
Rodessa	3,600	—1,000

■ CONTINUED ON PAGE 54

HOW TO MAKE YOUR GOODALL ROTARY HOSE LAST LONGER

(No. 1 of a Series)

REDUCE THE AMOUNT OF FLEXING NEAR THE POINT OF ATTACHMENT TO THE COUPLING!



Drawing shows clearly the severe angle hose must make in an installation such as above.

Drawing shows the result of application of the Goodall Compensating Gooseneck which allows the hose to hang vertically from the swivel connection.

The more acute the angle through which the hose is bent at the juncture of hose with swivel or standpipe, the greater the likelihood of premature failure.

Your Goodall long life rotary hose is made up of a combination of duck, rubber, and wires; the wire keeping the duck and rubber from bursting under the tremendous pressures that obtain under usual drilling conditions and especially in drilling present-day deep wells. Since the wires are applied under tension, in order to balance the construction of the hose, it is incumbent on operators who want to get the longest hose life possible, to prevent flexing and kinking.

Flexing near points of attachment can be held to a minimum by using swivel goosenecks that will allow the hose to hang in a nearly verticle position. With the old-fashioned type of swivel gooseneck, the hose is held in a bent position as it hangs from the swivel. The excessive strain at this point eventually causes the wires to break and the hose to fail.

There are two practical methods of obtaining the drape of hose that will result in a minimum of strain: (1) Use a single, full 160-degree swivel joint at the junction of hose and standpipe. (2) The acute angle in the gooseneck of some swivels can be compensated for by the use of either a Goodall Compensating Gooseneck, or a ball joint.

YOU WILL ADD MANY MORE FEET OF DRILLING TO YOUR GOODALL ROTARY HOSE BY FOLLOWING THE COMMON SENSE RULES THAT ARE OUTLINED IN THIS SERIES OF ADVERTISEMENTS

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GOODALL RUBBER COMPANY OF TEXAS

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FACTORY AT TRENTON, NEW JERSEY

Field	March 1945 Ability	Change from June 1944
Texas—District 7-B:		
Wimberly	3,750	1,385
Texas—District 7-C:		
Barnhart*	3,800	1,300
McCamey	9,000	—1,000
Todd, Deep*	3,000	500
Texas—District 8:		
Cowden, N.	29,000	—6,000
Cowden, S.	3,700	—300
Crossett*	630	510
Eaves	2,000	1,000
Embar-Ellenburger	3,500	—500
Foster	18,000	—6,560
Fuhrman-Masco (Incl. W. Fuhrman)*	5,000	—3,500
Fullerton*	15,000	8,800
Hendrick	4,150	—600
Iatan, E. Howard*	4,300	700
Kaystone-Holt*	900	3,100
Mabee*	2,800	2,000
Monahans*	1,060	510
Ownby*	850	510
Sand Hills, McKnight*	2,000	1,000
Sand Hills, Tubb*	7,000	500
Seminole	20,000	—4,000
Slaughter	55,000	—10,000
Waddell*	4,000	500
Wasson "66"*	400	—20,000
Weiner*	1,800	600
Texas—District 9:		
Fargo	2,150	—600
Hildreth	5,000	3,000
K.M.A.	18,200	—1,800
McDonald*	780	530
Vogtsberger*	1,100	—650
West*	850	650
Texas—District 10:		
Panhandle	90,000	—2,500

* Subsequent completions expected to increase producing ability.

New Map on California Is Announced by USGS

Bituminous sandstone deposits near Santa Cruz, California, which contain approximately 10 million barrels of asphaltic material suitable for many of the uses of petroleum are mapped out in a chart just prepared by the United States Geological Survey.

Maps included give details of the deposits, in which there is about 10 percent of asphalt. The sandstone, in nearly horizontal beds, range from a few to 35 feet in thickness, and for the most part are accessible to surface stripping, although the overburden is locally as much as 100 feet thick.

Copies of the chart, issued as Preliminary Map 27 of the oil and gas investigations series, are available from Washington or Los Angeles at 60 cents each.

The survey also has charted the oil and gas possibilities of the lower Ordovician and Cambrian rocks in the Michigan Basin in Preliminary Chart 9 of the investigations series, copies of which are available from Washington or Lansing, Michigan, at 40 cents each.

Change in Appeals from Texas Commission Asked

Appeals from Texas Railroad Commission orders to the courts would no longer be trails de novo under provisions of House Bill 713, introduced last week by Representative Cecil Storey of Longview. The bill provides that, "a transcript of the evidence and proceedings before the Commission . . . should be filed in said District Court at any time before the trial begins, and the cause shall be reviewed on said transcript alone and not as a de novo trial," as is now the case.

Variable-Width Roller Support Speeds Shop Welding Jobs

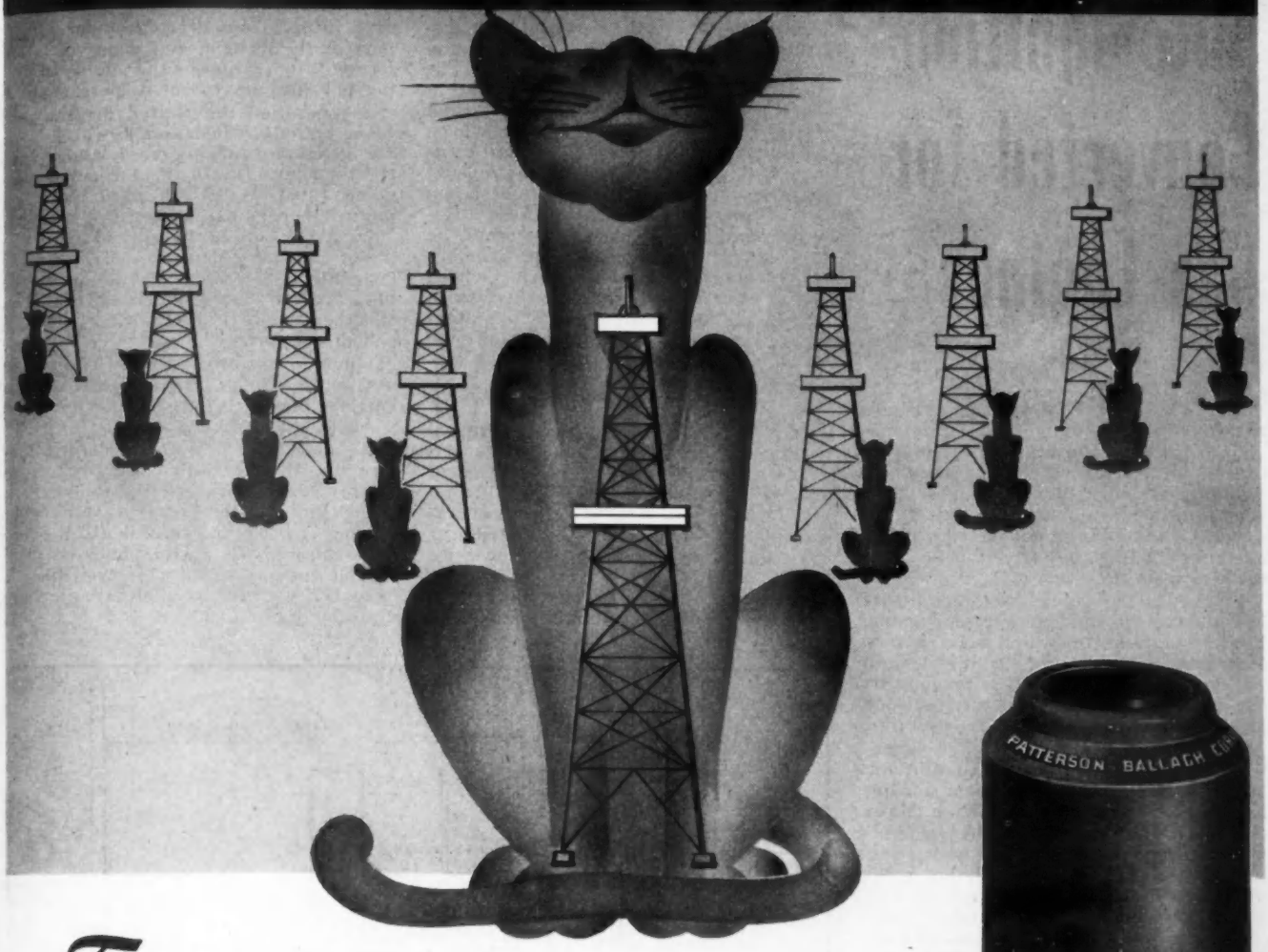
Notches in the curved sides of this roller support are engaged by the extended axles of the two rollers and permit a wide variation in spacing of the two supporting surfaces so as to accommodate large diameter pipe, heavier cylindrical vessels and even tanks of a diameter which may be handled within the shop. The two hand grips permit safe placing of the roller unit under the large-diameter tanks while suspended by sling or shop chain hoist.

ECONOMICAL repair and fabrication of large, awkwardly-handled pressure vessels in the average oil company welding shop is possible only if adequate provisions are made to cut down the man-hours usually required to take care of that special type of work. On large cyclindrical vessels for example, the work is largely one of welding—long, uninterrupted seams that require close coordination between welder and the helper who rotates the vessel in maintaining th weld smoothly and evenly placed. In the repair shop of one major producing company, the welding foreman devised a roller-contained device which enables the men to adapt it to nearly any size vessel, yet permits them to have a degree of "rollability" which speeds handling of the heavy work.

The support consists of two rollers mounted atop a steel framework of twin upright ½-inch plates that are welded to the flat surface of an over-turned 30-inch length of 8-inch channel iron. The rollers are 10 inches in diameter with a 2-inch wide tread, providing a wide, secure base on which the work can turn safely. The rollers turn on axles, the outer ends of which are cut to rectangular shape so they can be slipped down and prevented from turning in the several slots cut into the upper edge of the curved sections of steel plate. There are three sets of these slots at each end of the support, their distances being 5½, 8, and 11½ inches respectively from, and on either side of the center of the device. The photograph shows the rollers in the farthest extended pair of slots, and in this position a 4-foot diameter vessel easily may be handled.

Solidly built, the roller support is made to stand the rough usage to which such tools are subjected in the shops. Two fillets on each side of the upright plates give ample support in supplementing the base welds. Because of its convenient size, it is easily skidded about the floor to various jobs, two small handles welded to either end providing convenient hand-holds. With several of these easily-constructed roller supports kept handy beside the welding bench, nearly any type of tubular or cyclindrical job can be handled and many man-hours of time saved.

CASING PROTECTORS • STABILIZERS • PIPE WIPERS • WIRE LINE GUIDES • WIRE LINE WIPERS • KELLY WIPERS
KELLY SUB PROTECTORS • MUD GUNS • MUD GUN NOZZLES • SWIVEL BAIL BUMPERS • DEAD LINE STABILIZERS
TRAVELING BLOCK BUMPERS • TUBING PROTECTORS • SUCKER ROD WIPERS • TUBING WIPERS



This Cat Has Nine Lives, Too!

A CAT with nine lives has nothing on PATTERSON-BALLAGH Lipped Casing Protectors. Before our conversion from natural rubber to PBX Synthetic Rubber, we received this report from a Texas field:

"One operator here drilled nine wells with the drill string equipped with the same PATTERSON-BALLAGH Protectors. They were still on the pipe in good condition when pipe was moved. Some of these Protectors were used in open hole, too."

We have every reason to believe that the new PBX Synthetic Rubber will equal or outstrip the performance of natural rubber.

A world wide test of PATTERSON-BALLAGH Protectors and other products involving a half million pounds of synthetic rubber, tried in thousands of wells has given an answer of satisfactory operation in one war-year that would have taken ten peacetime years. For nearly two years PATTERSON-BALLAGH has been converted 100% to the use of PBX Synthetic Rubber, using no plantation rubber whatever. ***PATTERSON-BALLAGH believes PBX to be the finest compound ever developed for casing protectors.***

Lipped Casing Protector

See Composite Catalog

"Best Bet Yet"

PATTERSON-BALLAGH

LOS ANGELES 1 • HOUSTON 10 • NEW YORK 6

Patterson-Ballagh LIP PROTECTORS

Now Made of PBX Synthetic Rubber . . . Oil and Weather Resistant

A Simple Method—

Auto Ignition Converted for Gas Engines

AS A METHOD of utilizing available materials and lessening war time material shortage inconveniences many operators are converting truck, automobile, commercial and other distributor type ignition systems for use on single cylinder gas engines. The converted ignition system is applicable to either a two-cycle or four-cycle engine.

So far as is known the predominate use to date is in small compressor plants, booster stations or water flood plants. However there is nothing involved in either design or operation to prohibit its use in general oil field operations, such as pumping power engines and the like.

Fundamentally the method is extremely simple in both construction and operation, as is illustrated in the accompanying schematic layout drawing. Many different arrangements of the system's integral parts may be made with equal success in performance and this schematic layout is accordingly intended to illustrate possible location and purpose of the component parts. As can be seen the system uses a storage battery for electricity, with the spark being regulated and timed by a converted ignition distributor geared directly to the engine flywheel.

Converting the Distributor

Practically any distributor can be converted for this purpose, by inserting a turning crank, as illustrated in the sketch, and gearing it to the rotor of the distributor. Location and dimensions of gearing are not shown since construction of this may be done in many different ways. One method, which is commonly used, is to form a crank of ⅛-inch diameter steel rod, as shown in the distributor and turning crank sketch. This crank is securely fastened, on suitable bearings in the distributor with a gear on the inside end to turn the rotor. The outside end of the crank is shaped as shown and fits into the slotted drive wheel which is bolted to the engine flywheel.

The slotted drive wheel may be constructed of ⅛-inch plate as shown, with a slot somewhat wider than the diameter of the distributor turning crank cut part way in towards the center of the wheel. The drive wheel is either drilled and threaded, or welded, onto its drive shaft of ¼-inch rod, which is fastened to a flange on the other end and bolted to the engine flywheel. Dimensions, size and thickness of materials used in the turning mechanism are optional as very little strength is needed to overcome the turning friction of the distributor.

In assembling, the drive wheel is cut, slotted, attached to a flange by the shafting, and bolted to the flywheel. The distributor is converted as outlined and attached to a suitable pipe stand. The distributor and pipe stand are put in place with the distributor turning crank fitting into the slot in the drive wheel, as illustrated in the distributor and turning crank sketch. The distributor and its pipe stand are in the position shown in the schematic diagram. It is absolutely necessary that the pipe stand be perfectly plumb and that the distributor, turning crank, slotted drive wheel, and of course the engine flywheel be in perfect alignment for smooth operation of the mechanism. The distributor pipe stand is then cemented firmly in place.

Preventing Loose Wiring

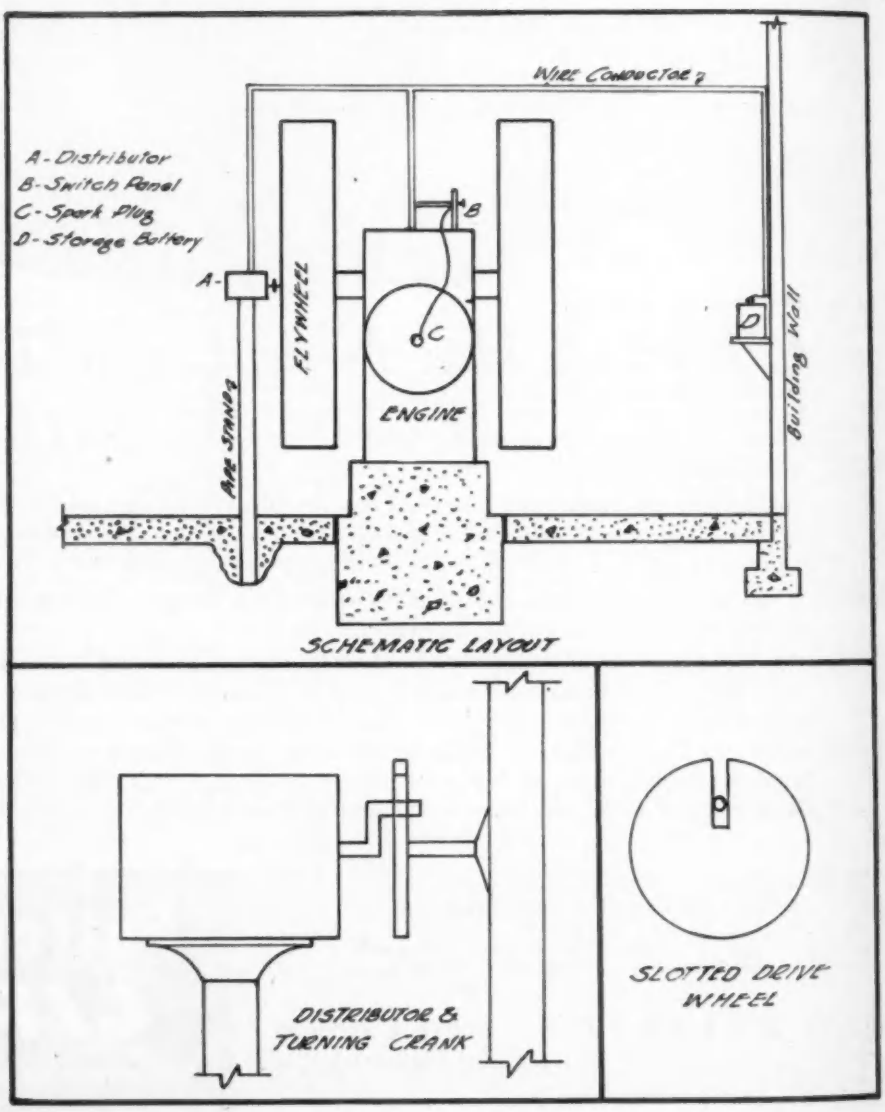
In connecting the system it is usual practice to use ½-inch pipe, or larger, as a conductor for the wiring to prevent against the obvious hazards of having loose wiring in the system. Some operators insert a flange into the distributor into which is screwed the pipe wire conductor.

The schematic layout illustrates the wiring, with the distributor being connected to a switch panel, mounted on top of the engine for easy accessibility, and to a storage battery mounted on a shelf built in the wall of the building. This method is good in that it allows easy inspection and replacement of any part of the system, and does not interfere with operation of the engine's moving parts or movement of personnel.

In operation the slotted drive wheel, being bolted to the engine flywheel, turns the distributor turning crank which turns the distributor rotor, as the engine flywheel turns. When the rotor reaches a point the spark passes to the spark plug. Timing is easily accomplished and quality of the spark depends only upon the charge of the battery, condition of the plug, and condition of the wiring. It is easily controlled by the most inexperienced operator.

Some operators have a recharging unit in the plant and a spare storage battery, one to be used while the other is being charged.

Regardless of how the system is constructed, the method of using a storage battery and a converted distributor as an ignition system for single cylinder engines has been successful, is very economical to install and is most troublefree in operation. If available the heavy duty commercial distributors are desirable.



WILSON SUPPLY COMPANY

1412 MAURY ST., HOUSTON, TEXAS

SALES OFFICES: Tulsa, Oklahoma; Dallas and Beaumont, Texas. LOS ANGELES: Western Pressure Control, 5700 Santa Fe Ave. TRINIDAD, B.W.I.: Neal Massey Eng. Corp.

BRANCH STORES: Texas—Gladewater, Barbers Hill, Bay City, Manahans, Alice, Victoria, Corpus Christi. LOUISIANA—Lake Charles, New Iberia, Harvey, Shreveport. ARKANSAS—Magnolia. MISSISSIPPI—Natchez.

Guy-Line Anchoring for Town-Lot Servicing

Efficient system devised where space is at premium and where portable mast for pulling must be erected

SERVICING producing wells in town-lot districts brings about many knotty problems not normally found in ordinary fields. In the first place space is extremely limited, usually allowing only the minimum of room for installing the necessary producing equipment, let alone the room needed for a pulling unit. The derrick usually is removed, making it necessary to rig up a portable mast for pulling; and because of the need for erecting a mast, difficulties are experienced in placing guy lines due to the proximity of private residential property and buildings. Much of this space problem was overcome by one servicing company operating in such a congested area, by the efficient placement of guy lines. Utilization of limited area and more quickly rigging up was made possible by making good use of the existing well tie-downs, plus the use of a heavy bar extending across the front of the pulling truck for the other guy line anchor points.

The service unit is a heavy truck having a draw-works mounted on the bed and with the base of the mast attached to it but resting on the ground at the rear of the truck. Despite the lack of room, some 10 guy lines are employed and none of them extend beyond the confines of the original rig base or the pulling unit. One line is brought down to each of the two distant former derrick leg bases, while two—the low and high lines—are attached to each of the nearer bases. The simple, efficient means of tying down these lines contribute considerably to the speed in rigging up the mast. A short, heavy piece of flat iron with a hole cut through each end and bent through an angle of about 60 degrees was secured to the top of the corner post by bolting it over one of the former derrick foot plate studs. Through the other hole was slipped one end of a turnbuckle and the eye then welded closed, making it improbable that the fitting would ever pull out. An ample length of chain between the turnbuckle and guy line assures rapid adjustment for all but the final few inches of turnbuckle slack in snubbing down lines on almost any derrick floor dimensions.

Making good use of the weight and constant dimensions of the heavy truck, two other guys were brought down to anchor points immediately back of the cab, turnbuckles being attached to tie-downs secured to the truck frame. The two high lines coming down from the top of the mast and requiring anchor points as far to the rear as the mast as possible, were tied to a short, heavy piece of 2½-inch pipe mounted on the front end of the truck. Two steel rings were welded to either end of the flat channel iron bumper and the length of pipe then slipped through and welded securely in place. Smaller loops with attached open hooks, were then welded to each end of the fender-wide pipe bar, providing an ever-present anchor to which the guys were attached.

Wells serviced with this type of guying average between 3000 and 4000 feet, and the anchors have proven to be amply strong in taking on loads usually encountered in such wells. Much time is saved on the average well set-up, for only minor adjustments, if any.

Use of a short section of chain, with the usual dog-type of hook to enable links to be hooked closely to provide adjustment, enables the guy to be pulled nearly taut, and the remaining tension to be applied through a short turnbuckle. Anchorage plates, bent to slip over the foundation bolts and provide pull in the direction of the guys, enable the tension to be applied directly in line with the load, and also form lock for one end of turnbuckle, eliminating need of one back-up wrench. **Also see picture, page 60.**

17.3% LESS WEIGHT shrinks Pipe Enameling Costs

Take a slice of identical thickness from each of these one-cubic-foot cubes of enamel. Each slice will cover one square foot of pipe surface. One of these cubes of enamel weighs more than the other due to the difference in quantity and type of filler used to fabricate the product.

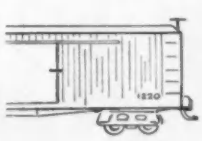
A slice of any thickness from the cube of low-filler content Barrett Pipeline Enamel weighs 17.3 per cent less than a slice of identical thickness from the cube of high-filler content enamel.

Apply this weight difference to a mile of pipe construction and see the savings you get . . .

You buy 17.3 per cent fewer tons of enamel.

You string 17.3 per cent fewer tons of enamel along the right of way . . . less hauling!

You ship 17.3 per cent fewer tons of enamel to do the job... A whale of a saving on freight costs!



You use less fuel for heating to reduce to liquid for application!

RESULT: A big all over reduction in your pipe-enameling costs.

FIELD SERVICE—The Barrett Pipeline Service Department and staff of Field Service men are equipped to provide both technical and on-the-job assistance in the use of Barrett Enamel.

Barrett
COAL-TAR ENAMEL

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Special anchorage loops and eyes on pulling-unit truck structure provide for effective mounting of guy-line turnbuckles and most efficient application of supports within restricted space. Through the use of these anchorage points, the servicing rig is able to dispense with outside guying except in direction of area actually spanned by well derrick bases.

need be made on the guys attached to the truck. Since the truck points are always constant, the only adjustments needed at any well ordinarily can be taken up quickly on the variable lines at the front of the mast. Since rising labor and operational costs currently are making it extremely difficult to realize a profitable margin, any time saved in setting up the rig at each location is doubly appreciated by the operator.

Schedule for Vocational Oil Classes Announced

The spring term schedule of classes in vocational training for the Texas oil industry has been announced by the Bureau of Industrial and Business Training of the University of Texas. The classes will be in operation by April 1. The schedule follows:

Production Classes: Crane, "Geology of the Permian Basin," to be followed by "Oil and Gas Reservoirs." E. A. Crites, Gulf Oil Corporation, instructor; Leland Martin, superintendent of schools.

Denver City, "Oil and Gas Reservoirs." R. F. Madera, Shell Oil Company, instructor; J. W. Jones, superintendent.

Goldsmith, "Field Production Practices," to be followed by "Study of the Goldsmith Pool." Lewis Finch, Jr., Stanolind Oil & Gas Company, instructor; Murry Fly, superintendent.

Iraan, "Geology of the Permian Basin" to be followed by "Oil and Gas Reservoirs." R. C. Pusey, Stanolind Oil & Gas Company, instructor; B. F. Copass, superintendent.

Kermit, "Mathematics of Oil Production" to be followed by "Gas Measurement." Gene Angus, Magnolia Petroleum Company, instructor; B. F. Meeks, superintendent.

Lefors, "Repressuring in the Panhandle Field." J. W. Chervenka, The Texas Company, instructor; E. R. Reeves, superintendent.

Odessa, "Field Production Practices" to be followed by "Study of the Goldsmith Pool." A. W. Paine, Phillips Petroleum Company, and Kye Trout, Jr., Gulf Oil Corporation, instructors; Murry Fly, superintendent.

Sundown, "Geology of the Permian Basin" to be followed by "Oil and Gas Reservoirs." Frank Patterson, The Texas Company, instructor; P. O. Smith, superintendent.

Wickett, "Geology of the Permian Basin" to be followed by "Oil and Gas Reservoirs." Tom Coffield, Gulf Oil Corporation, instructor; R. D. Lee, superintendent.

Wink, "Mathematics of Oil Production" to be followed by "Gas Measurement." H. M. Krause, Humble Oil & Refining Company, instructor; Lee Johnson, superintendent.

Pipe Line Classes: Colorado City, "Oil Pipe Line Transportation Practices," Paul Crenshaw, Shell Pipe Line Corporation, instructor; E. E. Williams, superintendent.

Kilgore, "Oil Pipe Line Transportation Practices." D. E. Maxwell, Sun Oil Company, instructor; K. L. Mills, local director, Kilgore Junior College.

McCamey, "Oil Pipe Line Transportation Practices." S. J. Reed, Shell Pipe Line Corporation, instructor; Howard Stoker, superintendent.

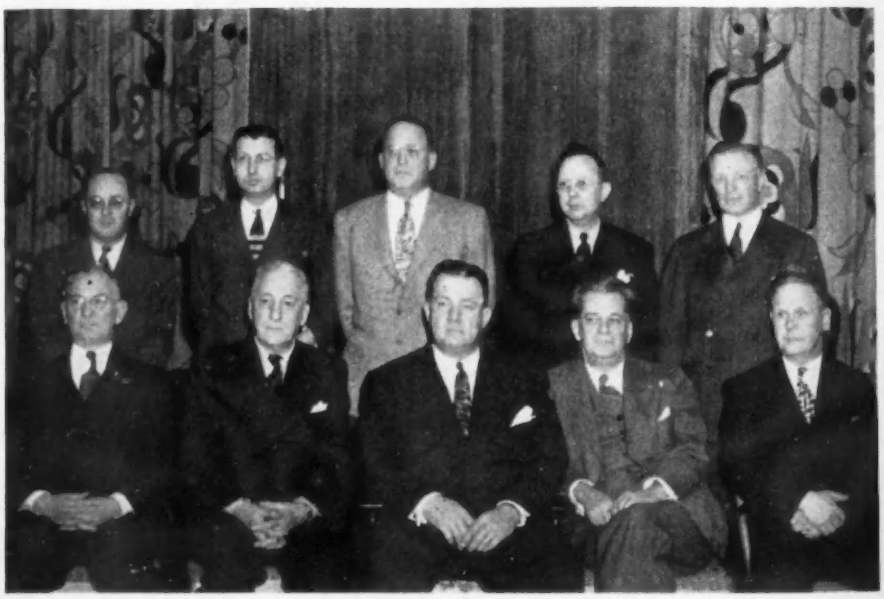
Further information about the classes and training program can be had from W. R. Cate, State Director, Drawer BB, Capitol Station, Austin 11, Texas.

Venezuelan Activities Are Related to Nomads

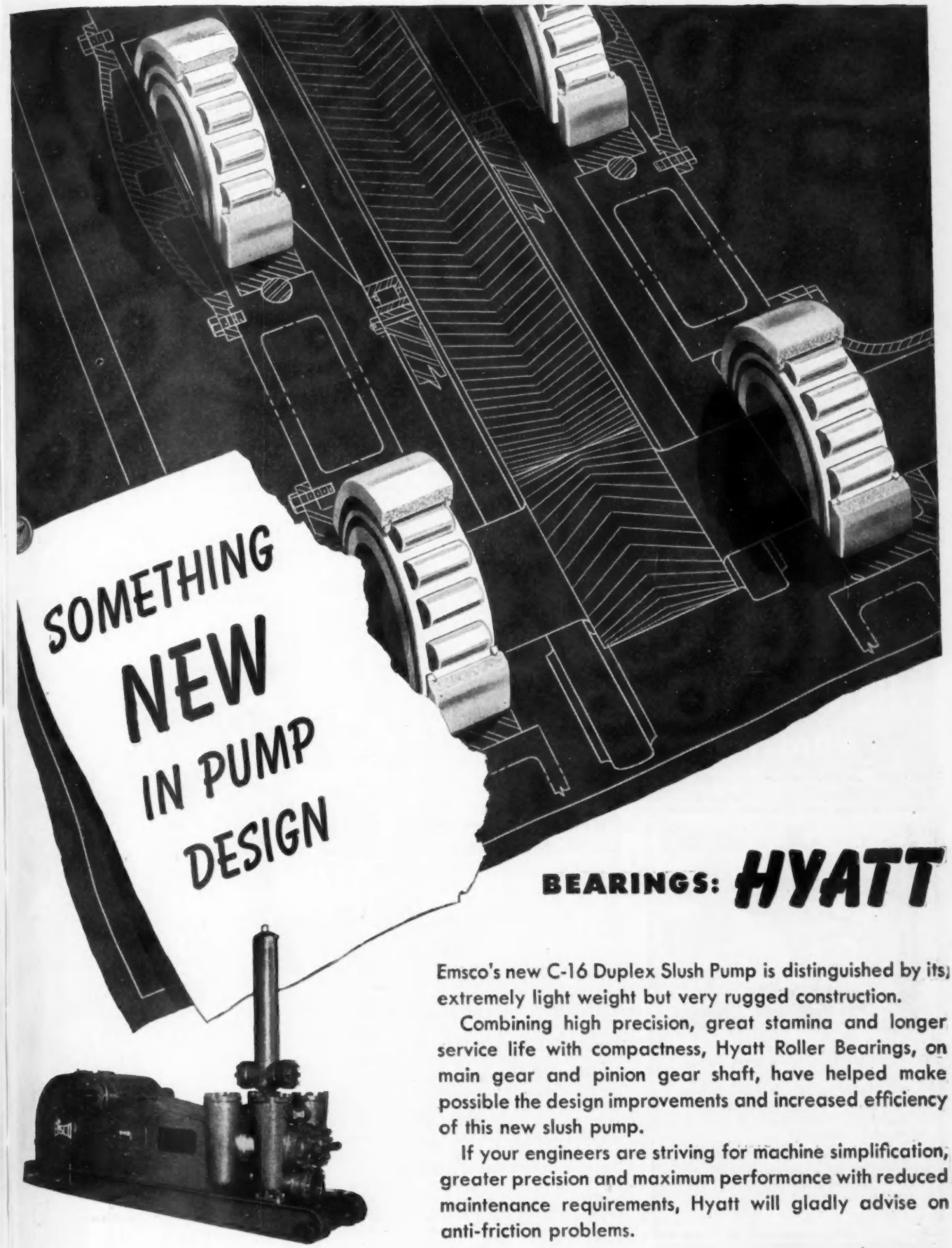
Eighty-one members and foreign guests heard an up-to-date story on Venezuela at the March meeting of Los Angeles Chapter of Nomads when John Dodge, head of the petroleum engineering department at University of Southern California and Florent Bailly with the Pantepec Oil Company at Caracas, Venezuela, since 1927, were speakers.

New officers, headed by President Elmer Smith, were presented. Earl Daniels will serve as chairman of the 1945 membership committee.

Officers Tulsa Chapter Nomads



Officers of the Tulsa Chapter, Nomads for 1945, are shown in the above photograph as follows: Seated, left to right: H. G. Texter, Spang-Chalfant, Inc., sergeant-at-arms; H. M. Cosgrove, Purchasing Agents Association of Tulsa, regent; Shep Miers, Southwest Supply Co., president; Don S. Bowers, W. C. Norris Manufacturer, Inc., regent; H. M. Cooley, Bethlehem Steel Co., secretary-treasurer. Standing: Don Hinderliter, Hinderliter Tool Co., vice president; Mitchell Tucker, Oil & Gas Journal, program committee; Henry Bourne, Republic Steel Corporation, chairman, membership; Paul Fitzgerald, Dowell Inc., chairman, program committee; Earle Smith, National Tube Company, program committee.



BEARINGS: **HYATT**

Emsco's new C-16 Duplex Slush Pump is distinguished by its extremely light weight but very rugged construction.

Combining high precision, great stamina and longer service life with compactness, Hyatt Roller Bearings, on main gear and pinion gear shaft, have helped make possible the design improvements and increased efficiency of this new slush pump.

If your engineers are striving for machine simplification, greater precision and maximum performance with reduced maintenance requirements, Hyatt will gladly advise on anti-friction problems.

HYATT BEARINGS DIVISION, GENERAL MOTORS CORPORATION
HARRISON, NEW JERSEY

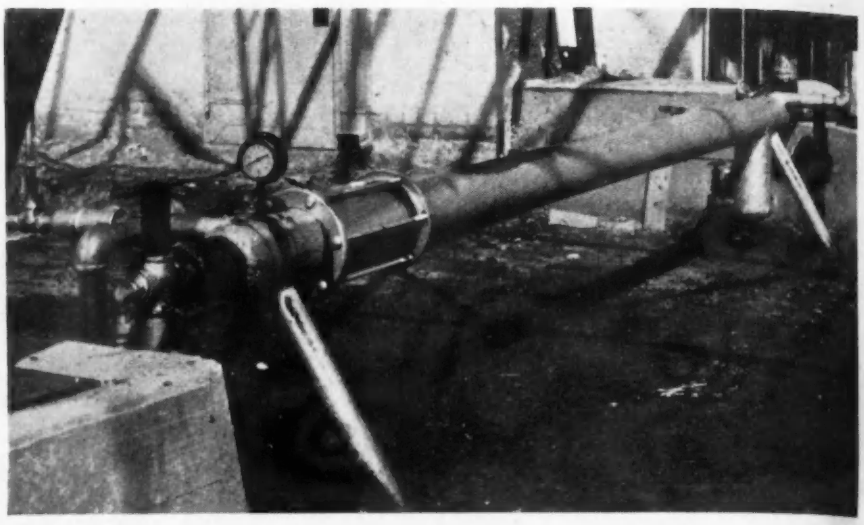
Flow-Line Heater Breaks Oil-Brine Emulsion

BRINE REMOVAL

To heat the flow from a well which was producing as a rather loose emulsion, one producer fabricated a special heater which raised the temperature sufficiently to break down the combination of oil and brine, leaving them free to settle out in the treating tank. The heater consists of a 20-foot horizontal run of 3-inch pipe, open at one end to take a gas burner, and fitted with a vertical stack of 2-inch pipe at the other.

Around this 3-inch burner section is welded a joint of 5½-inch casing, the ends formed to meet the smaller diameter pipe, and leaving an enclosed annular space through which the emulsion is carried. The entry is at the burner end of the device, the outlet at the farther end where temperature of gas and fluid have become equalized.

At the outlet end is built a sediment and water trap, of the same diameter as the barrel, and with a drain line and valve which permit clearing of the trap at intervals without disturbing flow through the heater.



This annular-type heater raises temperature of stream with gas flame through center in line with flow of fluid. Expansion permitted by sleeve joint.

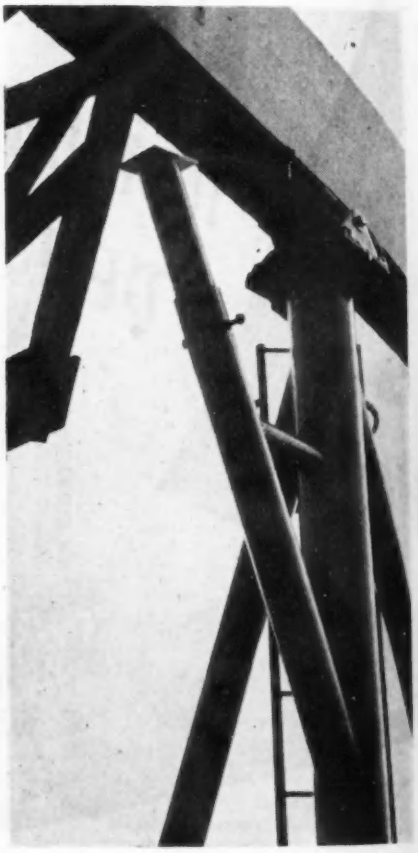
Pairs of pipe legs, set at a 45-degree angle to provide stability, are welded to the shell near the ends of the heater, with footings of steel plate. These feet are not tied to concrete bases, but are left free to shift slightly under expansion and contraction changes as the unit heats up and cools off. An expansion joint is built into the shell to absorb the changes in this portion of the unit, as the inner pipe, or combustion chamber, elongates when the unit is fired.

Extensible Beam Rest Eliminates Sampson Post

WELL SERVICING

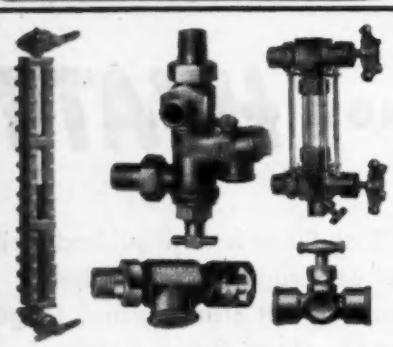
Increased efficiency of the standard-end type of pumping unit may be obtained by installing on the Sampson post an angle brace structure which serves the dual role of holding up the walking beam while the well is being pulled, or as a headache post when the well is in operation. A short length of pipe having a smaller piece telescoped inside it is mounted at approximately a 25-degree angle from the vertical against the front side of the Sampson post. The inner or telescoping section has welded to its upper end a flat steel plate which serves as a pad against which the lower side of the walking beam may rest. A heavy bolt run through matching holes in the two pipes provides a means of adjusting the device to any desired length in holding the beam up out of the way of the blocks when the well is being pulled. When in the position shown in the photograph, it provides a stop for the beam should the rods or other connecting equipment part.

The all-welded, well braced support is built up of salvaged materials and may be installed on any standard end unit having a steel Sampson post. Also, in doing away with the headache post, somewhat more room is made available on the derrick floor.



Telescoping head with pad rest is adjustable to hold beam clear of work space and check overswing.

PENBERTHY
QUALITY
PRODUCTS



Penberthy liquid level gages of various types—injectors—ejectors—all so widely used throughout the oil industry because they have always been dependable under the most severe service conditions.

All are of rugged construction and made by an organization with 57 years experience in the manufacture of quality products.

PENBERTHY INJECTOR CO.
DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

Polished Rod Shield Checks Abrasion Loss

This pipe guard, enclosing polished section of rod, absorbs contact against horsehead without damage.

EQUIPMENT PROTECTION

There are occasions when it is necessary to lift the sucker rod string a few feet so as to bring the play of the plunger higher in the pump barrel, particularly on a new well where a certain amount of experimentation is necessary to locate the plunger in adequately handling sand and gas-lock problems. On a well having a full length polished rod, this means raising that rod quite high and subjecting the exposed part to possible abrasion due to occasional contact with the horsehead on the up or down stroke.

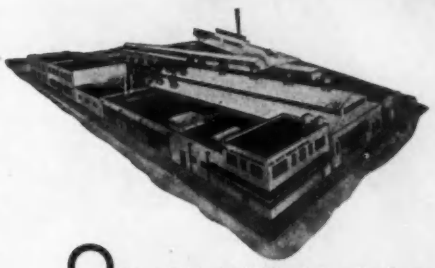
Much of this difficulty may be eliminated by slipping a length of pipe over the exposed portion of the polished rod —that part which extends above the hanger clamp. One operator did this quickly and inexpensively by placing a 3-foot length of 2-inch pipe above the rein hanger, then placing the rod clamp at the top of upper end of the pipe. The load therefore still is carried by the rod clamp but the reins hold the rod at the desired working position. Only compression is placed on the pipe, so there is little likelihood of failure due to a weak link in the rod string.

Emergency Device For Stroke Changing

MULTIPLE PUMPING

A simple device for lengthening or shortening the pull of a jack line has been designed by one California operator. It consists of an upright mounted piece of 4-inch pipe 5 feet long. This piece of pipe has another piece of 4-inch pipe 3 feet long welded across its bottom to form an inverted tee. The horizontal bottom pipe is firmly held by two 6 x 6-inch timbers which serve as bearings. Extending down from the top of the upright or vertical pipe for a distance of two feet are 4-inch pieces of sucker rod welded at intervals of one inch in a horizontal position. These pieces of sucker rod form bearings or cradles upon which bear the loops of the pull lines. One pair of sucker rod cradles has been mounted about 6 inches lower than the rest and upon this pair rests the permanent line. The other line may be easily moved up or down the pipe resulting in a longer or shorter stroke.

Improvised from available and scrap material when standard unit was unobtainable, this device permits regulation of individual well output and load balancing.



OUR NEW PLANT pictured above is the home of BRONZOID. This product contains pre-treated lead which arrests crystalline growth in the resultant bronze. The high compressive strength and low Brinnell hardness of BRONZOID combine the best features of bronze and babbitt metal. That's why it is called, "The Ultimate in Bearing Bronze."

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Call JOHN FIELD-MAN ON YOUR NEXT WATER CONDITIONING JOB
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Casing Pumps

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2501 Virginia St. Fort Worth, Texas

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See LAMTEX, Composite Catalog, pages 1570-1571

CAMERON TYPE

"QRC"

BLOWOUT PREVENTERS

The Type "QRC" Pressure-Operated Blowout Preventer is truly Cameron's greatest achievement in a quarter-century of leadership in the design of drilling control equipment. Such revolutionary "QRC" features as: Ram changing *in a few minutes*, 1000 pounds closing pressure seals 8000 pounds well pressure, thirty percent less weight than earlier models, 10,000 pounds test pressure models (6" and 10" sizes), plus patented self-feeding ram packers and numerous other new and improved features have won the enthusiastic approval of the industry. Complete details will gladly be sent on request.

CAMERON IRON WORKS, INC.

711 MILBY ST., HOUSTON, TEXAS

Export: 74 Trinity Place, New York, N. Y. *California:* Howard Supply Co., Los Angeles
Rocky Mountain: Mountain Sales & Service, Casper, Wyo.
Oklahoma: 310 Thompson Bldg., Tulsa.

Record Crude Output and High Runs to Stills Afford Good Supply of Products

Current supply of major refined products was fairly well in line with current demand in the week ended March 24, as record-breaking crude production and comparatively high crude runs to stills afforded output of the products having favorable effect on inventories. There was a further addition to stocks of gasoline, and some distillate fuel oil also accumulated, while withdrawals from stocks of residual fuel oil were lower than in the previous week.

United States crude production of 4,782,000 barrels daily, up 8000 from the week before, was a new high a little above the previous peak of 4,780,000 barrels daily recorded in the week ended February 17. The crude output was almost 400,000 barrels a day or 9 percent greater than in the comparable week last year.

Crude runs to stills at United States refineries averaged 4,742,000 barrels, down 31,000 from the week before and 40,000 a day less than domestic production, whereas runs in some former weeks exceeded domestic output, necessitating withdrawals from storage besides substantial imports. The runs of 4,742,000 barrels daily were 276,000 barrels or 6 percent above runs in the like week last year.

Crude oil stocks totaled 219,486,000 barrels on March 10, after increasing within the week preceding at the rate of about 100,000 barrels daily. However, the new total was still close to the recent 23-year low of 218,675,000 barrels. It was 16,633,000 barrels or 7 percent less than the 236,119,000 barrels on hand a year previously.

Production of gasoline, including natural blended at refineries, averaged 2,129,000 barrels daily in the week of March 24, up 61,000 a day from the previous week and up 241,000 daily or nearly 13 percent over the like week a year ago. Stocks were further increased by 19,000 barrels daily and rose to 99,012,000 barrels. At that level they were 13,429,000 barrels or nearly 16 percent higher than a year previously. However, this gain over a year ago largely represents military supplies. Civilian grade gasoline stocks on March 24 totaled only 53,487,000 barrels, or about 3,000,000 more than the 50,394,000 barrels held a year previously. Military and other gasoline stocks March 24 totaled 45,525,000 barrels, up more than 9,000,000 from the 35,189,000 barrels on hand a year previously.

Gas oil and distillate fuel oil production averaged 635,000 barrels daily in the week of March 24, down 11,000 a day from the week before and 48,000 a day or 7 percent from output in the corresponding week last year. Stocks of these light fuel oils were increased at the rate of 43,000 barrels daily, apparently in reflection of relatively mild weather for the season. They rose to 26,782,000 barrels. Despite the increase, however, they were about 4,000,000 barrels or 13 percent under the level of 30,925,000 barrels at which they stood March 25 a year ago.

Production of residual fuel averaged 1,395,00 barrels daily in the week of March 24, an increase of 18,000 daily over the week before although 4000 a day less than output in the like week last year. Stocks of residual continued to decrease, withdrawals having averaged 56,000 barrels daily. They then stood at 43,327,000 barrels, a new low for modern times, and were about 9,000,000 barrels or 8 percent below the 52,475,000 barrels reported on March 25 a year ago.

Pollution Charged

Three Tulsa oil firms have been charged by the Oklahoma Corporation Commission for alleged salt water pollution of Lake Okmulgee, source of the water supply for the town of Okmulgee, Oklahoma. Citations were issued against Iverson Tool Company, O. H. Sheldon and Sheldon Oil Company. They have been ordered to show cause why they had not re-plugged an abandoned gas well in the northwest corner of Okfuskee County which is an alleged source of salt water seepage into a creek that feeds into Lake Okmulgee.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Crude Oil Prod. Week Ended	Runs to Stills Barrels Daily	Runs to Stills Week Ended	Crude Stocks Barrels	Crude Stocks Week Ended	Gasoline Stocks Barrels	Gasoline Stocks Week Ended	Gasoil and Distillate Stocks Barrels	Gasoil and Distillate Stocks Week Ended	Residual Fuel Oil Stocks Barrels	Residual Fuel Oil Stocks Week Ended
High:												
1941	4,337	11-22	4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	47,861	11-14	95,857	1- 3
1943	4,436	11-13	4,331	12- 4	245,752	5-29	94,159	3-20	47,187	11-27	72,881	1- 2
1944	4,762	9-30	4,798	12-30	240,992	1- 1	89,162	4- 1	48,863	10-28	64,644	10- 7
1945	[1]4,782	3-24	[1]4,803	2-24	221,628	1-20	99,012	3-24	38,298	1- 6	56,074	1- 6
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 8
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,382	4-12	90,914	7-12
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-13	232,191	1- 9	68,182	10-16	30,732	4- 3	57,596	12-25
1944	4,357	1- 1	4,228	2-12	220,258	9- 9	76,302	1- 1	30,232	4-19	49,737	3-18
1945	4,678	1- 6	4,656	1- 6	[4]218,675	3- 3	86,616	1- 6	26,483	3-17	43,327	3-24

TRENDS OF 1944 AND 1945

Trends in Week Ended:	Crude Oil Production Daily	Crude Oil Runs to Stills Daily	Crude Oil Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gasoil and Distillate Production Weekly	Gasoil and Distillate Stocks Week End	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1944:									
January 1	4,357	4,453	240,992	13,192	76,302	4,575	42,310	9,141	57,330
January 29	4,409	4,359	240,251	13,427	81,075	4,054	37,266	8,889	52,857
February 26	4,423	4,377	237,137	13,183	85,248	4,558	33,766	8,952	51,387
March 25	4,385	4,443	236,285	13,362	87,287	4,979	31,319	9,013	51,669
April 1	4,383	4,435	234,667	13,824	89,162	4,450	30,530	8,367	51,326
April 29	4,431	4,300	235,342	13,126	88,462	4,284	30,236	8,398	49,985
May 27	4,514	4,532	234,423	13,502	86,468	4,702	32,035	8,568	49,812
July 1	4,587	4,638	228,860	14,052	83,559	4,496	35,360	8,872	52,235
July 29	4,608	4,627	225,112	14,115	82,665	4,833	38,135	8,900	56,280
August 26	4,667	4,698	222,931	14,112	80,740	4,566	41,453	8,680	59,839
September 30	4,762	4,775	222,393	14,494	78,028	4,622	45,329	9,292	64,226
October 28	4,740	4,658	223,235	14,117	79,058	4,772	48,705	8,985	64,382
December 2	4,712	4,693	221,591	14,853	80,427	4,082	45,832	8,981	61,727
December 9	4,704	4,552	220,258	14,611	80,880	4,056	44,436	8,923	60,458
December 16	4,695	4,537	222,075	14,145	82,747	4,353	42,413	8,727	59,280
December 23	4,729	4,682	222,575	14,635	83,355	4,605	40,846	8,798	58,509
December 30	4,705	4,798	222,998	15,342	86,614	4,257	39,495	9,156	57,430
945:									
January 6	4,678	4,656	220,331	14,472	86,616	4,533	38,298	9,092	56,074
January 13	4,722	4,570	221,114	14,139	87,814	4,408	36,410	8,993	54,207
January 20	4,733	4,686	221,628	14,554	88,708	4,586	35,041	9,082	52,554
January 27	4,727	4,756	221,310	14,957	88,223	4,843	33,651	9,252	51,119
February 3	4,723	4,662	221,674	14,535	91,034	4,559	32,370	9,377	50,451
February 10	4,728	4,770	218,894	14,996	92,455	4,565	30,544	9,237	48,845
February 17	4,780	4,787	220,060	14,910	94,680	5,053	29,864	9,234	48,240
February 24	4,777	[1]4,803	219,351	15,500	95,972	4,958	28,753	9,084	46,713
March 3	4,765	4,753	[4]218,675	14,704	97,603	5,026	28,110	8,728	45,021
March 10	4,768	4,777	218,760	14,557	97,310	4,887	27,001	9,752	44,150
March 17	4,774	4,773	219,486	14,481	98,882	4,527	26,483	9,042	43,718
March 24, 1945	[1]4,782	4,742	.....	14,907	99,012	4,448	26,782	9,166	43,327
March 25, 1944	4,384	4,466	[5]236,119	13,221	85,583	4,785	30,925	9,195	52,475
Change:									
In week	+8	−31	+726	+426	+130	−79	+299	+124	−391
In week	+398	+276	−16,633	+1,686	+13,429	−337	−4,143	−29	−9,148
In year	+9.1%	+6.2%	−7.0%	+12.8%	+15.7%	−7.0%	−13.4%	−0.3%	−7.9%

[1] All time peak. [2] Lowest between January, 1922 and July 1, 1944. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [4] Lowest since December, 1921. [5] Stocks, March 11, 1944.

San Salvador Line Hearing Nears Climax

TGT Project Awaits Turn Before FPC

Presentation of direct testimony on the application of the Tennessee Gas and Transmission Company for authority to construct 95 miles of 16-inch pipe line from the San Salvador field in Texas to its main line, involving the building of four compressor stations to be financed by Defense Plant Corporation has been concluded and the hearing recessed to give counsel an opportunity to study the evidence before cross-examining witnesses.

Testimony focused on financial and technical matters, with one company official estimating that there is a remaining recoverable reserve, as of January 1, of nearly 212 trillion cubic feet of natural gas in the Stratton Aquadulse Field where, he said, there are 35 gas-bearing sands with up to four reservoirs in each.

The hearings will be resumed before the Federal Power Commission after Easter and are to be concluded in time for the commission to take up the application of the United Gas Pipe Line Company April 9. That application covers the construction of a 142-mile, 24-inch line from the Carthage field to connect with its own and Tennessee Gas and Transmission's facilities in Ouachita Parish, Louisiana.

The Tennessee project will move an additional 60 million and the United project about 170 million cubic feet of gas daily, and representatives of a number of states are watching the proceedings closely, although they have not indicated that they will offer any opposition to the applications, as part of studies which are now being made to determine the future position of their gas reserves.

Hearings on the United application originally were scheduled for March 26, it being expected that the Tennessee case would be out of the way. The application was filed after the Tennessee company withdrew its request for a 20-inch line from the Carthage field, and is designed both to fill the needs covered by the Tennessee application and and the increased requirements of United customers in the southeast.

Survey for Rangely Field Pipe Line Is Being Made

Engineers for Utah Oil Refining Company have begun a survey over rugged terrain to determine the most suitable route for a proposed 10-inch pipe line from the Rangely field, Rio Blanco County, Colorado, to Utah Refining's main trunk line across southern Wyoming to its refinery terminus at Salt Lake City.

One route may take the line from Rangely north past the Powder Wash and Hiawatha fields to the main trunk line in Wyoming, about 108 miles, while another choice may be a northeast direction to Baggs, Wyoming, where it will parallel the recently completed oil line from Craig, Colorado, to the Wamsutter junction.

Water Line Laid

A water distribution system totaling 29,000 feet of 5 9/16-inch pipe has been laid for Humble Pipe Line Company in the Willamar district, Texas Gulf Coast. Allied Welding and Engineering Company, Houston, was the contractor.

Phillips Awards Contracts For Oklahoma, Texas Lines

Harry Liles of Oklahoma City, Oklahoma, has been awarded a contract by Phillips Petroleum Company to lay approximately 70 miles of 2- to 20-inch line for a wet gas gathering system in the West Edmond pool of Central Oklahoma. Phillips also awarded contracts to United Contracting Company of Wichita Falls, Texas, to lay eight miles of 24-inch gathering lines to supply two carbon black plants in the Texas Panhandle, and to R. H. Fulton & Company to lay 22 miles of line in the Sneed area.

WPB Promised Ample Gas For Carbon Black Plants

An ample supply of sour gas for carbon black plants in the Texas Panhandle will be assured by Phillips Petroleum Company's new line, Olin Culberson, chairman of the Railroad Commission, told War Production Board officials at Austin.

WPB has made several efforts to obtain sweet gas for carbon black production, but this is prohibited by statute in Texas.

Phillips Completes 7-Mile, 6-Inch Line in Oklahoma

Parkhill Truck Company of Tulsa has completed stringing about seven miles of 6-inch pipe for Western States Construction Company which is being laid for Phillips Petroleum Company on the outskirts of Oklahoma City and the same company reports nearing completion on stringing 25 miles of 6-inch pick-up, about 25 miles of 6-inch relay and about seven miles of new 7½-inch pipe for Swinerton and Walberg, pipe line contractors of Houston, who are laying the line for the Shell Pipe Line Company in the vicinity of Odessa.

Cabot Carbon Completes 20-Inch West Texas Line

Cabot Carbon Company has completed its 133-mile 20-inch natural gas carrier from the Halley field, Winkler County sector of West Texas to its natural gasoline and carbon black plants between the Kermit and Keystone fields. This supplemental gas supply has enabled the company to enlarge the capacity of its plants.

Houston Contractor to Lay McCarthy Gathering Lines

J. R. Horrigan Construction Company, Houston, is waiting on pipe to begin laying about 55 miles of gathering lines in the Winnie, Stowell, Fannett and Fig Ridge fields, Texas Gulf Coast, for Glenn McCarthy.

Pipe is expected to arrive about April 15 for 3½ miles of 1½-inch line, 10 miles of 2-inch, 3½ miles of 2½-inch, 3 miles of 3-inch, 5 miles of 4-inch, 9 miles of 6-inch, 3 miles of 8-inch, 1¼ miles of 10-inch, ½-mile of 12-inch, 6 miles of 14-inch, 2 miles of 16-inch, 5½ miles of 18-inch, 2¼ miles of 24-inch and 1000 feet of 30-inch.

Horrigan has finished laying 28 miles of 10-inch gas line from the Winnie-Stowell area to McCarthy's West Beaumont-Port Arthur system. High-pressure gathering lines totaling 5½ miles of 4-inch and 3 miles of 6-inch have also been laid.

Sinclair Relaying Line Across Chariton River

Anderson Brothers, Houston contractors, are taking up and relaying 4800 feet of line across the Chariton River, Missouri, for Sinclair Refining Company.

The job consists of 1200 feet in each of four 8-inch lines. The line is a part of Sinclair's Mid-Continent-Chicago system.

Right-of-Way Purchased For Interstate Pipe Line

Interstate Pipeline Company has purchased 75 percent of the right-of-way for construction of a 140-mile line from the North Baton Rouge Refinery in Louisiana to the Mallalieu field in Mississippi, 10 miles south of Brookhaven.

The line is to be in three sections as follows: a 12-inch line from the North Baton Rouge Refinery in a northeasterly direction to Liberty, Mississippi, which will be about 50 miles in length, then northwest to the Cranfield field of Mississippi about 15 miles east of Natchez, Mississippi, with an 8-inch line on to Liberty, Mississippi, in a northeasterly direction to the Mallalieu field, 10 miles south of Brookhaven, with the 10-inch section. This line will serve as a connection from the Cranfield field of Mississippi to the Holly Ridge and Lake St. John fields of North Louisiana.

Laying Pennsylvania Line

Anderson Brothers, Houston contractors, are laying 500,000 feet of 2, 4 and 6-inch line in Northern Ordnance Company's gathering system near Oil City, Pennsylvania.

Phillips' Record Royalty Bid Accepted by Venezuela

The Official Gazette of the government of Venezuela confirms a previous report that Phillips Petroleum Company of Venezuela secured title to the Lote "D" concession in Cedeno-Maturin, Monagas, at a royalty commitment of 33⅓ percent, the highest bid reported to date for national reserve blocks in the "hot" area west and southwest of the Santa Barbara-Travieso producing region. The new Phillips concession comprises 2682 hectares.

Atlantic Completes First Pirital, Venezuela, Well

Venezuelan Atlantic Refining Company was preparing on March 24 to complete as a dual producer its first well in the Pirital blocks, extending production westward in the Santa Barbara-Travieso area of Monagas, Venezuela. Mene Grande was rigging up an offset to the east. This first test of Pantepec's Pirital concession holdings will be followed by a second in the Avipa tract, about three kilometers west.

Atlantic has also started drilling at Morichito 1 in the northeastern corner of the most western tract of the Pirital group. It is about five kilometers south of Areo.

Under the terms of the Atlantic-Pantepec agreement the former will drill eight test wells in Pantepec concessions before April 1, 1947, and may then exercise option of selecting operating concessions on a half-interest basis or may purchase Pantepec rights.

On March 23, the Morichito 1 operation was shut down for fishing, with some 200 feet of drill pipe and tools lost in the hole.

Bachaquero Development Resumed by Mene Grande

Mene Grande Oil Company is drilling toward completion in its Laguin 8 in the Bachaquero field, eastern shore of Lake Maracaibo. The company had previously done no field development drilling there for several years, although Venezuelan Oil Concessions, Ltd. (Shell) has continued to be active. During the first week of February the latter company completed a producing well in the field and spudded LB-129, which was at 3700 feet on February 16.

Creole Completions Still On Decline in Venezuela

Creole Petroleum Corporation completions in Venezuela have been declining progressively since November from a high of 24 for that month, to 19 in December, 15 in January, and 13 in February. Of 71 completions in the four-month period, 29 were made in the Jusepin field, 22 in the Mulata field, 14 in the Lake Maracaibo district, and 2 in the San Joaquin field. Of these field development wells there were dry holes. In addition, the company completed four wildcat wells, three of them dry. One gas well was completed in the Mulata field.

Average initial production of 13 successful completions in the Lake Maracaibo area was 1306 barrels daily, as compared with an average of 547 barrels for 20 producing wells added in the Mulata field, and 528 barrels for the 29 new Jusepin wells. The single successful well in the San Joaquin field had an initial of 1521 barrels.

Completion Delayed

Cia. de Petroleos del Valle del Magdalena (Socony-Vacuum) was drilling below 7200 feet at the end of the second week in March in Cantagallo 6 flank test on the west side of the Magdalena River in southeastern Bolivar, Colombia, after failing to encounter the Cretaceous pay section at the expected depth of 6800-7000 feet. No new locations have been announced in the 2-well Cantagallo field, pending the outcome of the No. 6 operation.

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Oklahoma

Anadarko Basin Wildcat Flows on Drill-Stem Test

Deep Anadarko Basin wildcat flows oil on drill-stem test; British-American spuds deep wildcat in Eastern Oklahoma County; Harp well in Cleveland County to resume testing immediately; Amerada acidizing possible gas pay in Hunton lime southwest of Lovell pool; east flank of Garber area gets important wildcat test; electrolog shows kick in Gutowsky wildcat and may give Alfalfa County first commercial production.

McClain County: On drill-stem test of Ordovician Wilcox sand in The Carter Oil Company's McBride 1, CSE NW 9-7n-3w, deep wildcat test in the Anadarko Basin and ½ mile south of the Cottingham 1, pool opener for the Washington area, flowed oil into pits before it was shut in. Test was between 10,600-10,637 feet with air in 2 minutes, flow of water cushion in 35 minutes and oil and gas in 40 minutes. The well checked 50 feet higher than the Cottingham producer on the Viola but only 20 feet higher on the Wilcox and so far an aggregate of about 8 feet of sand has been logged. Production string will be set for a test and the well probably will open a new pool.

Logan County: Amerada Petroleum Corporation was acidizing in the Hunton lime at Dodd 1, SE NW NW 31-18n-4w, after drilling to 6851 feet and plugging back to 6797 feet. With casing ripped between 6752-97 feet and acidized, the formation showed gas. An old well to the northeast of the Dodd test produced some oil in the Hunton before it was abandoned.

Oklahoma County: On an 1800-acre block which has been intensively geologized British-American Oil Producing Company spudded in at Reece 1, NE NE NE 18-14n-1w, and the test will be closely watched. It is between Northeast Edmond and Northeast Arcadia, the former pool producing from the Bartlesville sand and the latter from the Wilcox.

Operator was reported to have maintained a seismograph party on the block for about 2 months before making location. Recent activity in the area has been confined to the Northeast Arcadia sector, where about 6 wells are producing and to the drilling of Gulf Oil Corporation's Beck 1, in 15-14n-2w, which was recently completed for 150 barrels a day. The Reece test has its best chance for production from the Bartlesville and Hunton zones.

Cleveland County: O. G. Harp, Sweetwater poultry dealer, plans an immediate test at his Mattheson 1, NE NW NE 19-10n-2w, wildcat, which has intrigued Oklahoma oil men. Carried to the Wilcox, which was structurally dry and showed salt water, operator plans to test the Simpson Dolomite and if unsuccessful will try for production in the Hunton and Bartlesville zones. The well early this year flowed more than 1300 barrels of oil in 24 hours from the Bartlesville and then went dead. Efforts to revive it were unsuccessful and it was carried deeper.

Garfield County: Following Cities Service Oil Company's strike north of the old Garber area, interest in the sector has become intense with a number of new wells drilling in the New Garber pool. Globe Oil & Refining Company has staked an important wildcat on the eastern flank of the Garber structure. It is Batchelder 1, NW NE NW 28-22n-3w, about a mile from production. The well will probably drill to the Arbuckle.

Alfalfa County: Ace Gutowsky plans a test of the Layton sand at Young 1-A, wildcat in the NW NW 14-24n-11w, after electrolog showed a kick in the horizon. Layton was topped at 5320 feet and survey showed good porosity and saturation at 5342-58, 5408-50, and 5473-89 feet. The well is bottomed at 5938 feet in the Oswego lime. This is the second test in the vicinity, the first having been abandoned after an unsuccessful fishing job, although electrolog showed a kick in the Layton zone.

Grady County: Magnolia Petroleum Company's Cunningham 1, CSE SE 33-5n-6w, deepest drilling well in Oklahoma and located southeast of Ninnekah, was drilling below 10,888 feet after picking up a soft section of sand at 10,862 feet which was reported well saturated. The wildcat encountered heavy gas pressure at 10,859 feet and the well heaved several times while pipe was being pulled. A core at 10,855-861 recovered tight sand carrying gas.

Decline in West Edmond Pressure Causes Concern

Continued decline in bottom-hole pressure at the West Edmond field of Central Oklahoma is causing much concern. The field has more than 450 producers and is running in excess of 60,000 barrels of oil daily to rank as the state's biggest individual pool producer.

In a drastic move to arrest pressure decline which is rated at about one pound per day, 6 major operators in the pool which extends into Oklahoma, Logan, Canadian and Kingfisher counties, have petitioned the Oklahoma Corporation Commission to hear their request for a slash in the per-well daily allowable, now 150 barrels.

The commission has fixed April 5 as the date for the hearing. Applicants include Anderson-Prichard Oil Corpora-

Wells Completed in United States in Week Ended March 31, 1945

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama	....	....	....	....	....	....	....	....	....	....	....	....	4	2
Arizona	....	....	....	....	....	....	....	....	....	....	....	....	....	2
Arkansas	1	....	....	....	1	....	....	....	1	1	2	....	28	43
California	42	....	....	....	42	....	....	....	4	4	46	48	514	431
Colorado	....	....	....	....	....	....	....	....	....	....	....	....	8	8
Florida	....	....	....	....	....	....	....	....	....	....	....	2	4	....
Georgia	....	....	....	....	....	....	....	....	....	....	....	....	2	1
Illinois	6	....	....	8	14	1	3	....	2	5	20	26	411	379
Indiana	....	....	....	....	....	....	....	....	....	....	....	1	62	78
Iowa	....	....	....	....	....	....	....	....	....	....	*	....	1	2
Kansas	18	1	1	7	27	....	....	....	4	4	31	24	345	437
Kentucky	....	....	....	....	....	....	....	....	....	....	....	3	113	144
Louisiana	5	....	....	3	8	....	1	....	3	4	12	19	215	145
North Louisiana	3	....	....	....	3	....	....	....	2	2	5	....	67	43
South Louisiana	2	....	....	3	5	....	1	....	1	2	7	19	148	102
Michigan	....	....	....	....	....	....	....	....	....	....	....	14	160	135
Mississippi	4	....	....	....	4	....	....	....	....	....	4	5	90	24
Missouri	....	....	....	....	....	....	....	....	....	....	....	....	8	3
Montana	2	....	....	....	2	....	....	....	1	1	3	6	47	60
Nebraska	....	....	....	....	....	....	....	....	....	....	....	....	2	7
New Mexico	5	1	....	2	8	....	....	1	1	2	10	12	124	105
New York	15	....	10	....	25	....	....	....	....	....	25	25	225	290
Ohio	3	1	....	....	4	....	....	....	....	....	4	5	146	193
Oklahoma	24	1	....	10	35	....	1	....	7	8	43	29	555	352
Pennsylvania	27	1	15	2	45	....	....	....	....	....	45	45	606	660
Tennessee	....	....	....	....	....	....	....	....	....	....	....	....	....	3
Texas	89	12	1	20	122	3	4	1	17	22	147	142	1,704	1,231
E.Tex.Bor. Co.'s	....	....	....	....	....	....	....	....	....	....	....	4	20	4
E. Texas Field	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Rest of E. Texas	1	....	....	....	1	....	....	....	1	1	2	5	48	67
North Texas	19	....	1	11	31	....	....	....	8	8	39	15	378	287
W. Central Tex.	4	1	....	2	7	....	....	....	2	2	9	11	90	89
West Texas	34	....	....	2	36	2	2	....	4	6	44	40	457	333
Tex. Panhandle	5	7	....	....	12	....	....	....	....	....	12	6	145	44
G. Coast, Upper	10	2	....	....	12	....	1	....	....	1	13	21	171	103
G. Coast, Lower	9	1	....	3	13	1	1	1	1	3	17	32	252	195
Southwest Texas	7	1	....	2	10	....	....	....	....	....	10	8	122	86
S. Central Tex.	....	....	....	....	....	....	....	....	1	1	1	....	21	22
West Virginia	2	12	....	4	18	....	....	....	....	....	18	9	188	223
Wyoming	1	....	....	....	1	....	....	....	1	1	2	1	37	38
Total U. S.	244	29	27	56	356	4	9	2	41	52	412	416	5,599	4,996

* Includes distillate wells. † Includes salt water disposal wells.

tion, Magnolia Petroleum Company, Peters Refining Company, Phillips Petroleum Company, Sohio Petroleum Company and Stanolind Oil & Gas Company.

Kansas

Ellis County Wildcat May Extend Richards Pool

Test west of Richards pool may be new area or mile extension as wildcat prepares to try for production in Kansas City lime; Graham County discovery establishes high potential from Lansing lime; Stanolind continues testing wildcat east of Hugoton gas area; long extension looms for Ray pool in Norton County.

Ellis County: Darby & Bothwell, Inc., reported a good oil show in Richards 1-A, SE SE SW 6-11s-18w, and was preparing to test. The wildcat is about a mile west of the Richards pool and if successful may give the field an extension. Showing was logged in Kansas City lime between 3380-85 feet and the zone was logged 25 feet higher than the Richards pool. Drilled to 3610 feet, total depth, Arbuckle was topped at 3574 feet but had no shows.

Graham County: One of the best discoveries in Kansas this year is Wood River Oil Company's Faulkner 1, SW SE SE 27-10s-22w, in the northwest portion of the Kansas Uplift, which has been given a physical potential of 405 barrels a day from Lansing lime. The discovery was drilled to 4100 feet, and was unsuccessful in tests of the Arbuckle and Marmaton zones. It was completed after shooting and acidizing at 3629-33 feet.

Meade County: Stanolind Oil & Gas Company continued to test Adams 1, SWC 8-35s-30w, 19 miles east of the Hugoton gas pool. A number of gas shows have been logged, the latest at 6140-65 feet, and a core at 6129-47 feet recovered sandy lime with gas odor. Previous tests have been made at 6165-7716 feet, and operator plans to test all gas shows in an attempt to extend the Hugoton area.

Norton County: A 2-mile extension to the Ray pool looms at Helmerich & Payne, Inc.'s, Hansen 1, CSW NW 26-5s-21w, which was preparing to test 5 good oil shows in the Lansing zone between 3338-66 feet. Saturation and porosity was also logged in the Arbuckle lime at 3653-95 feet. There are no dry holes between the Hansen test and the Ray field producers.

New Mexico

Clear Fork Prospect Tests Water in Upper Zone

Clear Fork prospect in Skelly field, Lea County, tests salt water in upper zone; West Lovington field defined to southeast and south; Maljamar field deep tests passes 11,000-foot level.

Lea County: Skelly Oil Company's Steeler 2, prospective Clear Fork discovery for the Skelly field, failed to confirm favorable drill-stem tests in Drilling to 7200 feet and swabbed salt water after using 2000 gallons of acid in 4 zones of perforations between 6510 and 6630 feet. These have been cemented to test less promising zones below and above.

Continental Oil Company et al's Skagg 3-B-23, southeast offset to the partnership's Abo(Wolf Camp)7700-foot oil discovery between the Skagg and Monument fields recovered 730 feet of gas-cut mud and 270 feet of sulphur water on drill-stem test at 6627-6726 feet, then recovered 1053 feet of oil and gas-cut mud at 6738-6848 feet. The discovery passed up without testing indicated production in the 6700-foot Clear Fork horizon.

West Lovington: Humble Oil & Refining Company's State 4-P and State 1-R defined this 27-well field to the south and southeast in recording the first failures. El Paso Natural Gas Company's State-Ramsco 1, 1⅜ miles northwest of the most westerly producer, was drilling at 4350 feet, and is the only outpost operation.

Phillips Petroleum Company's State-Lea-Mex 4, Ellenburger project for the Maljamar area, was drilling unidentified lime at 11,010 feet.

West Texas

Midland Wildcat Forestalls Blowout in Deep Zone

Midland County wildcat conditions mud to forestall blowout in deep zone; 2 Crane County wildcats temporarily pass up gas production; Andrews County wildcat has thick section of Devonian oil pay; Crockett County oil well ablaze for week.

Midland County: Humble Oil & Refining Company's O. P. Buchanan 1, Wm. Baldridge Survey No. 32 and 9 miles southeast of Midland, registered pressure buildup and showed signs of blowing out while drilling unidentified brown lime at 10,347 feet. Evidence of oil and gas was noted while circulating heavier mud preparatory to deepening before making drill-stem test. Buchanan 1 is in the Midland Basin, and entered the San Andres at 4250 feet with elevation of 2699 feet. A protection string of 7⅝-inch casing was cemented at 8819 feet to combat cavings. The prospect is on a 6700-acre lease. Seaboard Oil Company and Standard Oil Company of Texas are starting Fasken 1, 7 miles northeast of Buchanan 1, on a 16-section block acquired by the latter in 1944 on a 5000-foot depth contract. However, the new development may result in Fasken 1 going deeper.

Production possibilities of deep-seated structures in the Midland Basin have been revealed by Humble Oil & Refining Company's Parrott 1, eastern Upton County wildcat and 37 miles south by east of the Buchanan prospect. Parrott 1 indicated a small pumper in broken pay at 7250-7575 feet and flowed 40-gravity oil at 9550-76 feet with nominal shows to 9696 feet. Top of the Pennsylvanian was called at 10,011 feet with elevation of 2699 feet, and the test was drilling lime at 10,110 feet.

Crane County: Gulf Oil Corporation's Henderson 1-E, PSL 25, Block B-27 and 2⅞ miles northwest of nearest production in the south portion of the Sand Hills field, was rated at 10,000,000 cubic feet of dry gas daily when tester was used in lime at 4350-4424 feet in Clear Fork, and was coring dry lime at 4576 feet. The company's Scott 1-E, C SW SW PSL 20, Block B-20, 1¾ miles northeast of the West Sand Hills field, showed a fair gas blow and recovered 330 feet of gas-cut mud with a trace of oil when tester was used on Holt lime at 3970-4019 feet. It was coring lime at 4057 feet. Both will be carried to the Ellenburger.

Andrews County: Sun Oil Company's Martin 1, discovery in Lower Clear Fork, flowed 301 barrels of 35.7-gravity oil with gas-oil ratio of 837/1 daily through ¼-inch choke after using 6000 gallons of acid in broken pay at 6850-7036 feet.

Shell Oil Company and The Texas Company's Ratliff-Bedford 1, indicated oil discovery in the 7800-foot Permian and from an unusually thick body of Devonian, topped at 8780 feet, was drilling lime and chert at 9155 feet. Devonian production was virtually confirmed by a drill-stem test at 8808-59 feet followed by more favorable showings at 3 deeper levels, and finally at 9093-9110 feet. However, it will be carried to Ellenburger before running pipe.

Magnolia Petroleum Company's Ralph 1-A west outpost for the Fullerton field, was drilling at 10,986 feet in Ellenburger, topped at 10,655 feet. The company's Martin 1, 5 miles south by east of the Fullerton-Devonian field, was drilling gray lime at 9585 feet, having entered the Woodford shale at 9075 feet.

Crockett County: Continental Oil Company et al's Todd 13, east edge of the Todd field and ¾-mile southeast of nearest Ellenburger producer, caught fire March 20 following a blowout caused by loss of returns while drilling lower pay at 6308 feet in Ellenburger, topped at 6096 feet. The oil flow is rated at 100 barrels hourly. Experienced firefighters spent a week removing destroyed derrick and rig, then cutting off the Kelly. The stage was set late last week to attempt to kill the well with pressure pumps. All water wells in the area had to be hooked up to obtain an adequate supply. Pipe had been landed below the Crinoidal and the first pay in the Ellenburger at 6236 feet, otherwise the situation would be more complicated.

Pecos County: The Texas Company's Riggs 1, C SE NE T. & St. L. Ry. 8, Block 146, is showing for a 1-15/16 miles south extension to the Fort Stockton field in testing free oil and oil- and gas-cut mud from Yates at 2884-2903 feet. Pipe has been set for completion. Nearest production is the company's Hart 1, which flowed 106 barrels initial with gas-oil ratio of 3000/1 after nitro shot in Yates sand at 2847-79 feet.

Gaines County: Shell Oil Company's Jones 2-A, Russell field, flowed 30 barrels of oil hourly, then dropped to 12 barrels hourly after using 500 gallons of acid through perforations at 6081-6131 feet in Upper Clear Fork. This zone showed production possibilities in drilling previous tests. Jones 2-A logged 28 feet net of oil pay in the regular zone at 7410-7715 feet.

Ector County: Rowan Drilling Company's T. P. Land Trust 1, prospective 2⅞ miles southeast extension for the TXL field, failed to flow on preliminary test after perforating at 7922-70 feet in

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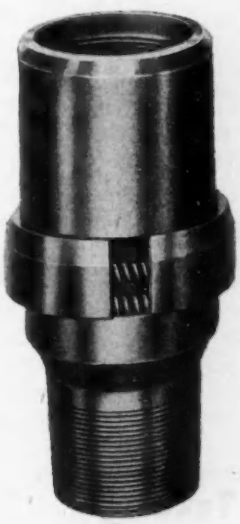

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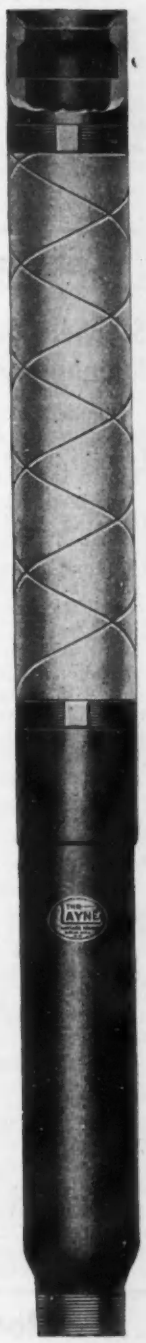

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Devonian, topped at 7826 feet. Perforations will be made higher. Phillips Petroleum Company's TXL-Phillips 1-A, 1⅝ miles north by east, entered the Devonian at 7768 feet, 45 feet high to the discovery, but was barren and was drilling at 8225 feet. Shell Oil Company's Thomas 1-A, ⅞-mile north of the discovery, entered dry Devonian at 7860 feet, or 5 feet low, and was drilling dry lime at 8360 feet. These Devonian failures materially alter the outlook on what was apparently a major sweet crude area.

Winkler County: Sun Oil Company's Wheeler 1, southwest edge of the Wheeler-Ellenburger field, recorded a potential of 371 barrels of oil with gas-oil ratio of 1000/1 after using 2000 gallons of acid through Devonian perforations at 8540-90 feet. This is the first Devonian producer for the field, although the zone indicated production in some of the previous tests.

Central West Texas

Stephens Semi-Wildcat Is Ellenburger Producer

Stephens County semi-wildcat produces from Ellenburger; offset given Jones County strike, dual completions started in Coleman County area.

Stephens County: Roeser-Pendleton, Inc. and F. Kirk Johnson's Phillips 1, southeast corner of W ½ sec. 69, and 1¾ miles east of the Ibex field, was swabbing about 200 barrels of oil daily from Ellenburger saturation at 4297-4307 feet. Flowing production is expected to follow acid treatment. Phillips 1 entered the Ellenburger at 4272 feet, according to revised measurements, with elevation of 1313 feet, and is 15 feet high to nearest Ellenburger producer in the Wild area. However, it is considered a separate structure.

The strike is on a 2000-acre block subleased by Northern Ordnance, Inc., which retained 5 80-acre tracts, including an offset.

Jones County: Pimo Oil Company's Martin 1, sec. 13, Jos. Weihl survey, opened a new pool on the east side of the county in pumping 4 barrels of oil hourly from Bluff Creek sand at 1620-33 feet with the hole bottomed in shale at 1634 feet. A second test has been started to the south.

Coleman County: W. B. Johnson Drilling Company's Daniels 1, SE SW T & NO Ry. 19, Block 2, linked the Novice and Williams fields in flowing 271 barrels of 42-gravity oil initial through 18/64-inch choke from Gardner sand perforations at 3584-3614 feet. Production test is pending in the Morris sand at 3723-50 feet, thus becoming the first dual completion.

North Texas

Split Pipe Delays Test Of Grayson Deep Project

Production test of Grayson County deep Ordovician wildcat delayed by split pipe; failure recorded by wildcat on southeast flank of the Petrolia uplift; Sewell field extended into Jack County.

Grayson County: The Pure Oil Company's little 1-A, Gordonville area, developed a split in 5½-inch pipe landed at 9205 feet with the hole bottomed in Ellenburger at 9919 feet.

Clay County: Fain-McGaha and Drilling & Exploration Company's Frey 1, Block 103, Parker County School Lands, and on the southeast side of the Petrolia structure, was awaiting orders in Ellenburger at 6530 feet. Frey 1 is 3 miles northeast of the recent Bend discovery in the Wood area, and involved similar structural conditions. Continental Oil Company's Thomas 1, indicated producer in the 4100-foot Strawn, was drilling shale at 6505 feet.

Cooke County: Sinclair Prairie Oil Company's Putnam 2, southeast offset to the Ordovician discovery for the North Walnut Bend pool, pumped 160 barrels of oil and 13 barrels of water initial after acidizing perforations at 3 levels between 5352 and 5444 feet.

Jack County: Thos. D. Humphrey et al's First National Bank (Bryson) 1, NWc SE BS&F Ry. Sec. 2, extended the Sewell field ½-mile east into Jack County in flowing 80 barrels oil daily after using 2000 gallons of acid through Bend perforations at 4015-42 feet. This outpost proved dry in the Mississippian, topped at 4616 feet, and drilled to 4681 feet.

East Texas

Southern Houston County Wildcat Checking High

Southern Houston County Woodbine wildcat checking about 80 feet high on chalk markers. Falls County wildcat perforating above Smackover; large quota of failures listed.

Houston County: Woodley Petroleum Company's Murray 1, John Durst survey and 2 miles west by north of the wildcat failure that precipitated the large-scale leasing program in Madison, Trinity, Walker and southern Houston counties, was idle for repairs in sub-Clarksville at 7870 feet, with the Woodbine due within the next 100 feet. Murray 1 logged Pecan chalk at 6800-7115 feet and Austin chalk at 7567-7795 feet with elevation of 170 feet. These markers are about 80 feet high to John S. Ivy and W. T. Moran's Murray 2.

Falls County: H. C. Cockburn et al's Gilliam-Cockburn 1, Stranger area, failed to indicate production from 3 stages of perforations in the Smackover, and perforations at 6908-13 feet in the Buckner tested a small show of fresh water. Additional perforations will be made higher.

Henderson County: The Texas Company's Morse 1, Chandler area, halted operations at 10,620 feet in Travis Peak, topped at 10,302 feet. No decision has been made as to whether pipe will be set for a production test of nominal porosity and saturation in the top section of the Travis Peak. Humble Oil & Refining Company's Jones-Huddleston 1, Eustace area, was abandoned at 8326 feet in dry Travis Peak.

Hunt County: Ohio Oil Company's Popper 1, Smackover project for the Cash faulted structure, was drilling gray sand at 8380 feet in the Cotton Valley, topped at 7043 feet.

Hopkins County: Humble Oil & Refining Company's G. W. Miller 1, northwest edge of the Pickton field, was drilling sandy-shale at 8105 feet, having logged insufficient pay section in the 7900-foot Bacon zone to indicate commercial production. The company's J. M. Burns 1 and W. H. Burns 1 were drilling at 5490 feet and 7195 feet, respectively, while derrick is up for P. T. King 1.

Cherokee County: Humble Oil & Refining Company's Stanley 1, 3600 feet south of its Larissa pool discovery, became the second failure in plugging at 10,737 feet. This outpost swabbed and flowed a small volume of oil after extensive testing of the Rodessa and Upper Glen Rose. The company's New Birmingham 1, offsetting depleted Woodbine producers in the Rusk pool, was drilling hard sand and shale at 10,195 feet, probably in the Travis Peak series.

Wood County: Amerada Petroleum Corporation's Gamblin 2, northeast edge of the Winnsboro field, logged the Bacon (Upper Rodessa) pay at 7890-7902 feet, and was drilling at 8050 feet with the lower pay due at 8160 feet.

Manziel Field: Amerada Petroleum Corporation's Rogers 2, John Polk survey, cemented 7⅝-inch casing at 6370 feet to complete through perforations opposite Paluxy oil-saturated sand at 6316-64 feet.

Van Zandt County: Lone Star Producing Company's Goode 1, D. Rose survey, was abandoned at 7714 feet in Travis Peak, topped at 7114 feet. It is the third deep failure within and near the Van field.

Southwest Texas

Production Test Slated For Starr County Wildcat

Production test scheduled for Starr County wildcat; wildcat locations made in Zapata County area.

Starr County: Sun Oil Company's Cristina M. Perez 1, wildcat 13½ miles northeast of Rio Grande City in Porcion 95, is standing cemented after finding showings thought encouraging enough to set casing for production tests. Total depth is 6000 feet with the 5½-inch casing at 5700 feet, but the test is being made at about 3990 feet.

McMullen County: Humble Oil & Refining Company's E. M. Baker 2, wildcat 17 miles northwest of George West, is drilling below 4000 feet. This test is in an aera where Humble drilled a deep dry hole during 1944.

Quintana Petroleum Corporation will drill South Texas Syndicate F-2, a 7000-foot wildcat 16 miles southeast of Fowlerton, but exact location has not been made, other than that it will be in the James Fitzpatrick survey.

Zapata County: George H. Echols has made location for 2 wildcats northeast of Zapata, both of which will be relatively shallow tests, going to contract depths of 3500 feet.

T. Dominguez 1 will be 9 miles northeast of Zapata, and Volpe Estate 2 will be 8½ miles northeast of Zapata. The former in Share 2 Porcion 31, and the latter in Share 1, Porcion 31.

Duval County: M. E. Davis' Alliance Trust Company 1, wildcat in the Realitos area, was preparing to core at 4450 feet after having cored at 4270-4305 feet, recovering shale only.

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Lower Texas Coast

Falls City Field May Have New Producing Horizon

Falls City field, Karnes County, may have a new producing horizon; Humble dual-completes Brooks County discovery; attempt to be made for shallow gas for drilling fuel in Ricardo field, Kleberg County; deep test scheduled for Bentonville field, Jim Wells County.

Karnes County: Southern Minerals Corporation's Martinez Mercantile Company 1, Falls City field, recovered 1010 feet of oil on a drill-stem test of an upper sand above the horizon producing in the discovery well. The test was made at 4623-37½ feet, open 30 minutes using ¼-inch chokes, and showed 5 pounds working pressure while recovering the pipe line oil. It cored to the discovery sand at 4655-60 feet and has run another drill-stem test. Upper sand was cored 7 feet higher in this well than in the discovery.

Seaboard Oil Corporation has made location for Rudolph Best 1 as a new test in the Coy City field recently opened by the company's Sallye Treadwell 1. Contract depth is 8000 feet, which should test the discovery pay. Location is 2 miles southeast of Coy City on a 499-acre lease in the James Bradberry Survey.

Magnolia Petroleum Company has made location for D. O. Klingman 1, 8000-foot wildcat test 9 miles southwest of Karnes City on a 672-acre lease in the James Bradberry Survey.

Kleberg County: Tide Water Associated Oil Company, which opened the Ricardo field, has staked location for H. C. Porter 1, scheduled to 2000 feet for an attempt to complete as a shallow gasser. Gas is sought for drilling operations. The company's Porter 1, on this lease, is now drilling and is scheduled to 8500 feet.

Sam E. Wilson has made location for Joe Dvorak, Jr., 1, 4 miles west of Ricardo, with announced intention of drilling to 10,000 feet.

Brooks County: Humble Oil & Refining Company's D. J. Sullivan 1, discovery well for the Mariposa field, completed as an oil well in perforations at 8537½-45½ feet, has perforated at 7740-50 feet for dual completion and made gas from the upper sand which has been shut in without a gauge.

Jim Wells County: H. M. Naylor Oil Company, of Houston, has made location for Lillian Muil 1, as a deep test for the Bentonville field, scheduled to 10,000 feet to explore deeper horizons. Deepest horizon presently producing in the field is in the Vicksburg just below 5650 feet.

Standard Wins Award

Standard Oil Company of California has won the National Victory Garden Institute's highest award for leadership in the victory garden movement for the second successive year.

Acting on behalf of the institute, Major Richard I. Bong, the Army's "ace of aces," presented a plaque to C. T. Furrer, president of Standard Stations, Inc., in a ceremony at the Santa Monica Army Air Force Redistribution Center.

Upper Texas Coast

Village Mills Field Has First Oil Production

First oil production found in the Village Mills field, Hardin County and Cities Service opens a new sand in the Alief field, Harris County; tests are in progress at Pinehurst in Montgomery County and at Cold Spring in San Jacinto County.

Hardin County: Houston Oil Company & American Republics Corporation's Hardin Fee 2, 1¼ miles south of the discovery gasser in the Village Mills area in the north edge of the county, has been completed as an oil well from the Cockfield sand. After drilling to 9559 feet for a test of the Wilcox, finding water in sands tested, it plugged back to perforate at 5797-5802 feet in the Cockfield sand from which the discovery well was completed. On preliminary test it flowed 6 barrels of 38.2-gravity pipe line oil per hour through a 7/64-inch choke with tubing pressure 750 pounds and casing pressure 700 pounds, to open first oil production in the new field.

The same operators are preparing to start drilling Rice Institute 1, another outpost 1½ miles west of the field's discovery well and more than 2 miles northwest of the new discovery.

Harris County: Cities Service Oil Company's Lummis 1 has extended the Alief field west of Houston ½-mile north and has also established a new

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pay sand for the field. Casing was set at total depth of 8328 feet and perforated with 45 shots at 8315-26 feet. Using a 3/8-inch choke for the first gauge, the well produced 110.8 barrels of 51.8-gravity condensate daily on the basis of a 7-hour test, along with 5,110,000 cubic feet of gas daily. Tubing pressure is 1798 pounds and the fluid contained 5 percent water. Operators were preparing to run potential test. This sand is around 400 feet deeper than the sand from which other wells in the area produce.

Gulf Oil Corporation's Settegast 1, deep test in the Pierce Junction field, is drilling below 10,657 feet in hard, sandy shale.

Montgomery County: Pan American Production Company's Posey 1, Pinehurst area, southern part of the county, has perforated casing at 11,085-095 feet for a test in the lower part of the gas-distillate sand. Should this test prove unsuccessful, pipe will be perforated higher in the same sand, which was topped at 11,050 feet.

San Jacinto County: Navarro Oil Company's Foster Lumber Company 2, second test in the Cold Spring field, was preparing to take a drill-stem test after coring to 7865 feet. It has gone into the upper part of the Wilcox sand but no correlation has yet been made for comparison with the discovery well. The discovery was completed through perforations at 7906-10 feet.

Brazos County: Phillips Petroleum Company's Fanny Schoeps 3, new holder of the world's depth record, was still fishing for stuck drill stem, and probably will be delayed for some time. Present depth has not been given out by the company, but is believed to be about 17,000 feet.

South Louisiana

New Pay Horizons Opened In West Tepetate Field

New pay horizons opened in West Tepetate field, Jefferson Davis Parish, and Potash field, Plaquemines Parish; Union Sulphur Company prepares to make production test in Acadia Parish wildcat.

Jefferson Davis Parish: Barnsdall Oil Company et al's Minos Miller 3, West Tepetate field, was still testing but seemed assured of production in another sand, the fourth for the field. After showing some water with the oil tested in the 8500-foot discovery horizon, it perforated in a new sand at 8400-08 feet. A drill-stem test, using ¼-inch chokes, recovered 600 barrels of oil daily along with 614,000 cubic feet of gas, and preparations were being made for completion at this point. This would give the field 3 oil-producing sands and 1 gas horizon.

Acadia Parish: Union Sulphur Company's Marvine Kahn, wildcat in the South Bayou Mallet area, was preparing for a test which may open new production for the parish. With depth 10,320 feet, a string of 5-inch liner has been set to 9840 feet, below the 7⅝-inch casing previously set to 9160 feet, and production tests are scheduled.

Union Sulphur Company is preparing to set a string of protection casing in its Medlenka 2, 1 location east of the discovery well in the Iota field. Total depth is 9662 feet, where it has reached the depth at which the lower pay was found in the discovery well.

Plaquemines Parish: Humble Oil & Refining Company has opened a new deeper pay in the Potash field with its Orleans Levee Board B-1 in 14-18s-15e. Casing was perforated at 10,880-891 feet and the well was brought in making 267-78 barrels of 31.7-gravity oil in 12 hours through a 9/64-inch choke with tubing pressure 1775 pounds and gas oil ratio 510-1. Depth is 10,910 feet with 7-inch casing at 10,906 feet.

St. Martin Parish: Continental Oil Company & Standard Oil Company of Kansas' Liquidators, Inc., 1, on the north flank of the St. Martinville Dome, is testing in the 9700-foot sand opened during 1944 by these operators. Casing has been perforated at 9750-60 feet and was connecting up casinghead assembly to start a test late in the week.

St. Charles Parish: Humble Oil & Refining Company has added another producer in the Good Hope field with Sarpy Brothers 2 which was brought in from the regular sand, with casing set at 7920 feet, and was flowing at the rate of 281 barrels of 36.6-gravity oil daily through a 5/32-inch choke with tubing pressure 1375 pounds.

Service Buttons Awarded

The Carter Oil Company has awarded 20-year service buttons to Tom E. Swanner, pumper, Rodessa, Louisiana; and Lannie L. Beaty, roustabout; Lawrence F. Siler, linewalker; Clarence C. Ramsey, sub-foreman; and Archie Gilmer, roustabout, all of Seminole, Oklahoma.

North Louisiana

Two Wells to Be Drilled In Red River Parish

Bienville wildcat is abandoned; northwest extension of Benton area continues drilling; Natchitoches gets another wildcat; 2 wells to be drilled in Red River parish.

Bienville Parish: T. L. James and Company abandoned Southern Advance Bag, Hodge-Hunt Lumber Company 1, 23-17-7, after drilling to 6235 feet. Placid Oil Company has made location for Nebo Oil Company B-2, NEC 24-15n-7w, Lucky field.

Bossier Parish: Vaughn and Hurley are reported drilling below 8765 feet at their northwest extension Ellerbe 1, 3-20-13, in the Benton area. This makes the hole deeper than at Barnsdall Oil Company's J. T. Hanks, completed in October in the Cotton Valley.

Caddo Parish: W. B. Johnson's W. P. Stiles Estate B-4, 22-21n-16w, has set 7-inch casing at 2384 feet and will test at total depth of 2420 feet. J. H. Lambert's Self et al 1, SE SE 12-20-15w, which has been shut down since the first of the year, perforated at 2301-04 feet and was waiting on fuel oil at 2308 feet.

Caldwell Parish: Shell Oil Company set 5½-inch casing at 11,615 feet and was making arrangements to perforate at the Shell Louisiana Lumber Company 1, 31-15-3e, a wildcat.

Claiborne Parish: Lyons and Prentiss were dually completing H. E. Patton 1, 36-21n-5w. The producing zones are the

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Vaughn sand at 8521 feet and the Burgess sand at 8901 feet. Union Producing Company's Johnston Unit A-1, in 17-21-4, has been closed in waiting on orders at 5210 feet.

Natchitoches Parish: This parish added another wildcat to its list of wells for the second consecutive week with the staking of Douglas Whitaker and Robert A. Stoey's Rhodes Unit 1, NWC NE 33-9n-9w.

Red River Parish: George and Jones are to drill the Semp Russ 2, SWC SE 16-12-10w, of the Gahagan for The Texas Company. The well is to go to 2700 feet. Whitehurst drilling company has been issued a permit to drill Sid Herold et al 1, NWC SE SW 1-12-11w. Hill Myers has completed S. Herold et al 1, 1-12-11, which Whitehurst drilling company drilled, flowing 400 barrels from 2864 feet.

Arkansas

Three of State's Wells Successfully Completed

Four wells abandoned; wildcat location abandoned in Newton County; 3 successful completions reported.

Columbia County: Placid Oil Company abandoned Whitlow-Groves 1, C N½ NW 28-18-21, after going to 8446 feet. The last drill-stem test at 6750-64 feet returned a slight show and then a flow of salt water. This defines the Cotton Valley formation on the south side.

Bradham and Ragsdale's Booth Unit 1, 14-17-19, was abandoned after running electric log. R. H. Crow completed Pound 1, SW SW SW 7-15-19, at 4070 feet, total depth. The well swabbed at a rate of 12 barrels of oil an hour through perforations from 3910-22 feet and plans were to place it on pump. Crow also completed Smart E-2, NEC SW SE 12-15-20, pumping 250 barrels per day.

Durbin Bond is in process of completing Wesley A-3, SE NW SW, 7-15-19, having set 5½-inch casing at 4008 feet. G. H. Vaughn's J. F. Smart C-3, SE SE SE 12-15-20, pumped at a rate of 210 barrels daily from perforations at 3810-3912 feet.

The Atlantic Refining Company's Carrington-Graves 1 swabbed heavy asphaltic oil and a little gas through perforations at 6852-60 feet. The well was plugged back and perforated at 6715-25. On drill-stem test 3800 feet of salt water was recovered. After a squeeze job and perforations at 5750-65 feet, a slight blow was noted and a show of gas was swabbed along with salt water. It was abandoned.

Miller County: Skelly Oil Company ran a drill-stem test at 5335-76 feet in the Texarkana National Bank 11, SEC NW 32-16-26, and recovered 1600 feet of salt water. Operator is now waiting on cement.

Wildcats: C. H. Murphy, Jr.'s Fee 1, NEC 4-19-15, Union County, was abandoned at 7870 feet. Casing has been set at G. H. Vaughn's McKissack 1, C SE NE 18-16-21, Columbia County. In Union County, Tide Water Associated Oil Company was drilling near 1000 feet in Grace Griffin 1, NW SE 33-18-16. Plymouth Oil Company is fishing at 2107 feet in Chester B. Spies 1, SWC 24-13-30, Washington County. William S. King abandoned location for O. F. Moten 1, wildcat in NWC NE SW 25-17n-19, Newton County.

Three Water Input Wells Authorized in Arkansas

Following action of the Arkansas Oil and Gas Commission as a result of a hearing earlier this month, The Carter Oil Company has been authorized to drill 3 water input wells in addition to a test well previously drilled and to operate a system for pressure maintenance and salt water disposal in the Magnolia field of Columbia County, Arkansas.

Southeastern

Adams County Has State's Third Wilcox Producer

Adams County has state's third Wilcox producer; 5 more producers indicated for Heidelberg fields; Jones County test may help define area involved in Bailey-Edwards 1 discovery.

Adams County: The California Company's Ella G. Lees 2, 52-7n-1w, in the Cranfield field has been completed with an initial flow of 222 barrels of pipe line oil in 24 hours. The well was cored to total depth of 5894 feet and 7-inch casing set. Production is from 48 perforations between 5878-86 feet in the Wilcox horizon through 9/64-inch tubing choke. This is the third Wilcox producer in the state, the other 2 being California's Natural Gasoline 1 and the Laura G. Ratcliffe 1, in the Cranfield field.

Jasper County: Five more producers

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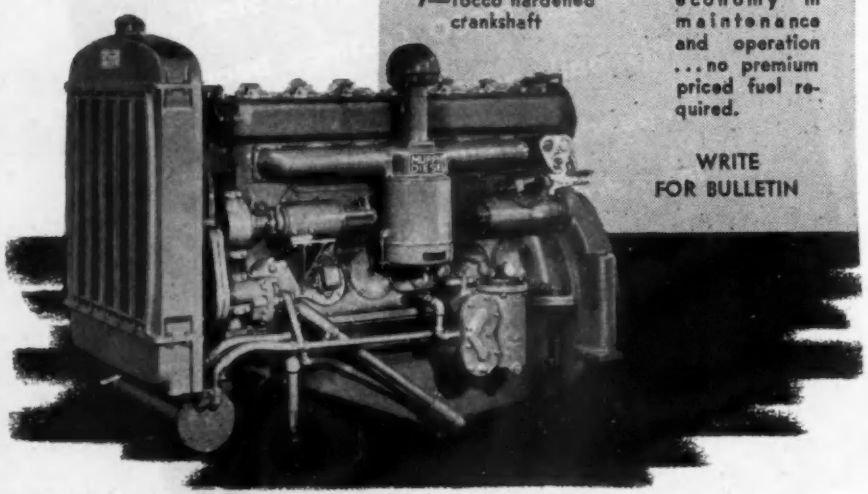

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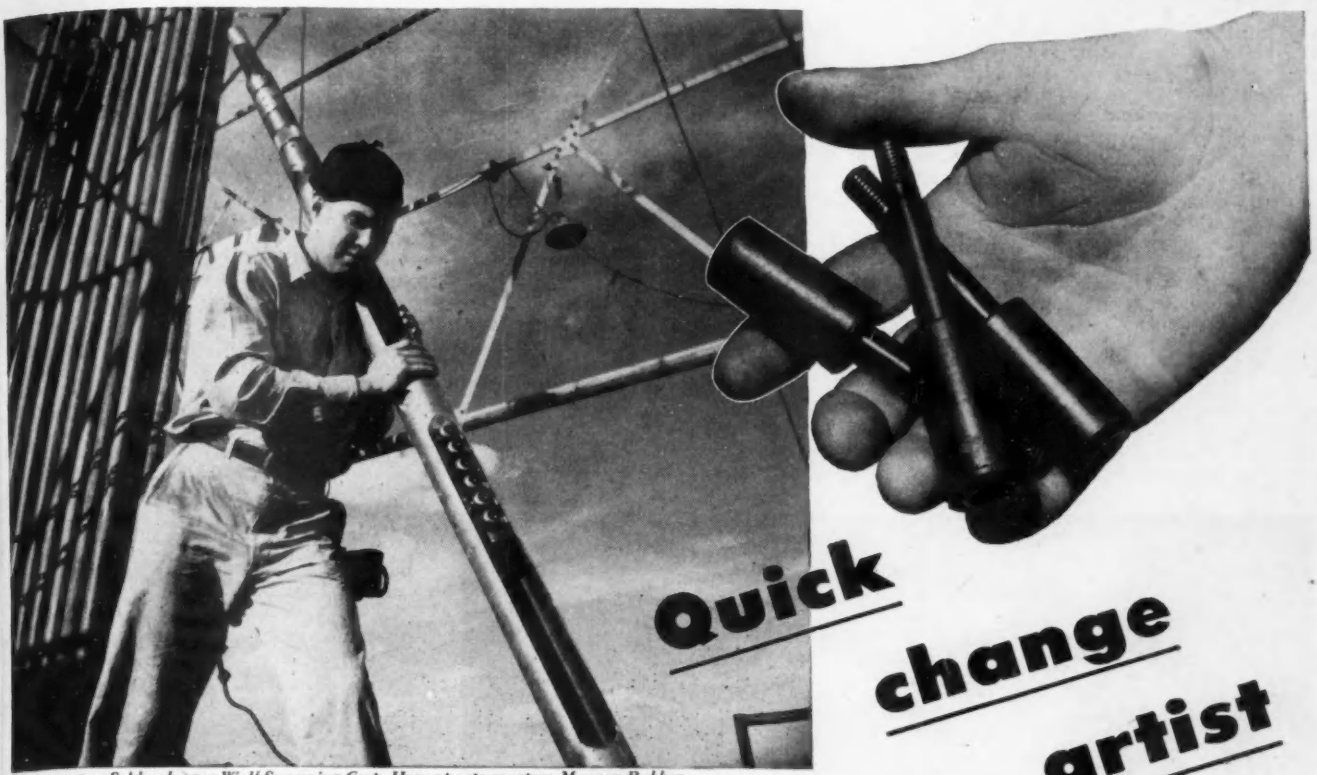

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are indicated for the Heidelberg and West Heidelberg fields. Fohs Oil Company's J. Lightsey 1, 18-1n-13e, has reached total depth of 4982 feet and swabbed an estimated 80 barrels per day. Drillers are preparing to build pumping derrick. Gulf Refining Company has 2 wells that indicate commercial production. Sallie E. Dantzler 3-A, 31-1n-13e, flowed an estimated 200 barrels of 21.7-gravity oil per day and J. E. King et al 1, 32-1n-13e, flowed an estimated 300 barrels of 23-gravity oil daily through an 18/64-inch choke. Also in the Heidelberg field, Gulf's Henry Thigpen 1, same section, was swabbed and started flowing about 75 barrels per day. In the West Heidelberg field Gulf has completed John Morgan 4, 1-10n-11w. The well pumped 80 barrels per day with production coming from perforations between 4950-60 feet.

Forrest County: H. I. Morgan-Dilworth Hager's Batson Hatten Lumber Company-U. S. A 1, C SW NW 20-1s-12w, is drilling a deep test in a well abandoned at 8549 feet in December after making no shows. Cores taken at 8556-76 feet, 8637-43 feet, and 8710-20 feet recovered only porous sand and streaks of shale with no shows. Drillers are now below 8870 feet in red shale and sand.

Hinds County: The Carter Oil Company's W. G. Davis 1, C NE NE 15-3n-4w, was drilling in sand at 8613 feet. Tests have shown fair porosity and a slight odor of gas was encountered farther up the hole, but on 16 side-wall cores at 8500-8535 feet, only shale with streaks of sand and no shows of gas or oil were recovered. Drillers were preparing to core again.

Jeff Davis County: Gulf Refining Company's V. G. Gholar 1, 27-9n-19w, Gwinville field, has had good shows of gas condensate in cores between 8438 and 8466 feet, but drill-stem tests recovered only salt water and traces of oil. Salt water was yielded by cores from 8466 feet, in sand between 8450-8491 feet. The next sand topped at 8526 feet was slightly porous, but had odor of gas condensate to 8535 feet. Coring was continued.

Marion County: Gulf's E. H. Bradshaw et al 4, N & E SWc SE SE 21-3n-17w, deep flank test on the Lampton Dome, was drilling in fine crystalline anhydrite at 4747 feet. Top of the cap rock was reached at 4630 feet. This is rather shallow for cap rock material and it is possible that an overhang is being penetrated.

Wayne County: Gulf's G. S. Stanley 22, 7-9n-8w, Eucutta field, was completed with an initial production of 22 barrels of 21.7-gravity oil per day through open tubing. This makes the forty-third productive well completed in the Eucutta field.

Lamar County: Gulf Refining Company's J. M. Andrews 1, 6-1n-16w, Baxterville field, is coring below 8700 feet. A drill stem test at 8627-32 feet recovered 2100 feet of oil, and cores at 8635-70 8670-75, and 8675-85 feet showed sandy shale with spot stains. Cores at 8685-95 feet recovered porous sand with show of oil.

Jones County: Gulf Refining Company's D. J. Flynt 1, C SW SE 35-9n-12w, has taken several side-wall cores in the Wilcox horizon with no shows reported. An electrical log was run to 6349 feet in the lower Selma chalk. Top of chalk was indicated at 5168 feet which is only 30 feet higher than the R. W. Williams Eastman-Gardner well, a mile southeast of the Flynt 1. The well is now drilling below 6400 feet.

Gulf's W. A. Valentine 1, 4-9n-13w, 2 miles southwest of the new Soso field, is drilling surface hole. This well, which is located over the Stringer dome, may give some idea of the extent of the area involved in the Bailey-Edwards 1 discovery well which was brought into gas-condensate production earlier this month. Gulf was also rigging up E. S. Gambrell 1, SW NE 34-10n-14w.

Alabama

W. M. Dalton has resumed drilling in Morris White 1, C NW SE NE 21-16s-11w, Fayette County, and is now below 500 feet. The well has been shut down since October after spudding.

Washington County: J. T. Parks' S. A. Hobson 1, 9-8n-2w, is shut down for repairs. The Eutaw zone was tested at 2660 feet and a total depth of 3135 feet reached. Parks is reported moving in rig for another test in 12-8n-3w.

Minesearch Corporation may core drill and shoot for possible sulphur production in the southeastern sector of the county in 36-4n-1w, where both gravity meter and seismograph work indicate the possibility of a piercement dome. No dome has yet been discovered in Alabama and therefore this test will be of some importance.

Choctaw County: Hunt Oil Company's H. G. Smith 1, 34-11n-4w, in the Gilbertown field, has reached 2626 feet, having set 5½-inch casing to 2561 feet and was running electric log. Crews are preparing to run rods and install pump. The company has spudded in W. J. Trice 5, same section of the field.

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reported increasing holdings in the Monroe area of Franklin County; The Texas Company in the southeastern portion of Wilcox County; and Sohio Petroleum Company in Houston County. The California Company is understood to have a tentative location in the St. Stephens area of western Clarke County, 12-7n-1e, between the Jackson fault zone and the Hatchetigbee anticline. The company already has 1000 acres leased in the area.

Florida

Two new locations in Florida stepped up the wildcat drilling campaign. The Pure Oil Company is clearing location for Kate Gaskin 1, 19-5s-9w, Gulf County. Magnolia Petroleum Company is building roads for State 4-B, C SW SW 21-3s-15w, Bay County. This location is 12 miles southwest of Panama City on state lands known as the Freel concession which run from Apalachicola Bay west to the Alabama state line. Magnolia is also reported preparing to stake another location in this section in Santa Rosa County.

Monroe County: O. D. Robinson's State 1, 29-59s-40e, is drilling below 2210 feet. Salt water from Barnes Sound is being used as drilling fluid.

Collier County: Humble Oil & Refining Company's Gulf Coast Realty Company 4, 20-48s-30e, Sunniland area, is drilling below 10,048 feet, in anhydrite and chalk.

Humble abandoned location for Gulf Coast Realties 3, 28-48s-30e.

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Highlands County: Humble's G. C. Carleton Estate 1, C SW NE 34-38s-29e, is drilling below 5050 feet in lime.

Charlotte County: Humble's new wildcat Lownes-Treadwell 1, 17-42n-23e, is rigging up.

Michigan

Huron County Test Rated Discovery Well in Monroe

C. W. Teater's Ignash 1, SE SE SE 21-18n-13e, Dwight Township, Huron County, in the extreme northern part of the "Thumb" is rated a discovery well in the Monroe at 2866-78 feet. It has swabbed and flowed for an estimated 15 barrels per day of 36-39-gravity black crude.

Isabella County: Sohio Petroleum Company's Dague A2, N½ NW SW 29-16n-6w, flowed 185 barrels of oil on 13-hour test from Dundee lime at 3749-58 feet to become the twenty-fourth consecutive producer in Coldwater pool since its discovery last August. Sohio will drill a 5500-foot test in the pool this summer which will be the first to penetrate below the Dundee and Upper Monroe horizon.

Illinois Basin

Jasper County Well Tests Pay in McClosky Lime

Jasper County well testing commercial pay; Franklin County wildcat resumes drilling after Aux Vases and McClosky tests; work slowed in Marine area.

Coles County: Kuehne Manufacturing Company's Fee 1, SE NE 23-12n-7e, wildcat ½-mile north of production in the Mattoon pool, has started drilling with rotary tools. The well, originally scheduled for drilling within the Mattoon city limits, was moved just across the city limit line.

Jasper County: In the new Dhom pool between Newton and Rose Hill, The Pure Oil Company's Dhom A-2, NE NW SE 34-7n-10e, was testing commercial pay in McClosky lime. The company's Dhom A-3, was abandoned as a dry hole at 2830 feet in McClosky.

Pure's Boos 1-B, NW NE NW 28-6n-10e, near Boos, is drilling below 800 feet. Sun Oil Company is moving in rotary tools after a delay due to muddy roads for Yost 1, NE SW SE 7-5n-15w, a wildcat.

Franklin County: Mohawk Drilling Company's Whittington 1, a Ewing township wildcat, failed to show commercial pay in tests of Aux Vases sand and McClosky lime. Drilling was resumed at 2800 feet.

Clay County: Magnolia Petroleum Company's Cammon 1, NE SE NE 16-4n-9e, a wildcat, was shut down after testing commercial pay in McClosky lime.

Saline County: Phillips Petroleum Company's Bunnell 1, NE NW NW 20-7s-5e, swabbed 141 barrels of oil in 24 hours from Aux Vases sand after a 75-quart shot. Operators were still testing.

Madison County: Work was slowed down in the Marine area. Only operations were Kesl's Whitmore 2, 24-5n-6w, which was drilling below 1900 feet and E. A. Obering's Becker 1, 9-4n-6w, which was drilling at 1750 feet.

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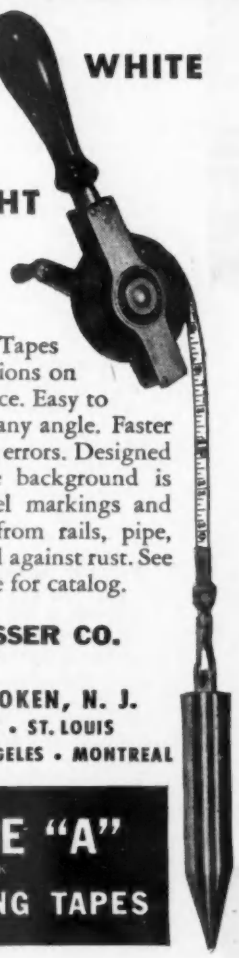

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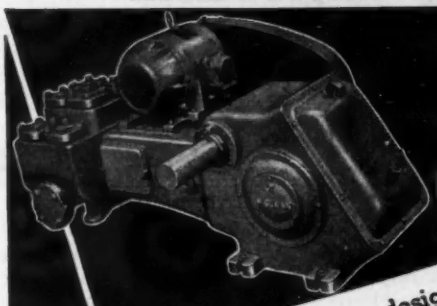

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California

Second Yolo County Test Staked by Texas Company

The Texas Company stakes second wildcat in Yolo County; 11 wells drilling or testing on North Dome of Kettleman Hills, Fresno and Kings Counties.

Yolo County: The Texas Company has made a second location 3 miles northwest of its Salisbury 1, which last week was drilling below 6565 feet in shale, thus giving the company two wildcats for that California county.

Imperial County: Texas Grupe-Engretson 1, Holtsville area, ran into a fishing job with bottom at 9014 feet. This hole is 8 feet above sea level. Amerada Petroleum Corporation's Veysey 1 is also drilling in the Brawley area of the same county, with bottom at 5118 feet, but it also had trouble. This hole in 150 feet above sea level. Other wells in this county have been drilled and each hole gave some indications that a field might be found with further drilling.

Los Angeles County: Standard Oil Company of California's PCO 42 in the Pico Canyon area reached 7795 feet after a string of 7494 feet of 9⅝-inch casing was landed.

Kettleman Hills: Eleven wells are now drilling or testing on the North Dome, Fresno and Kings counties, 4 by Kettleman North Dome Association and 7 active holes drilling by Standard Oil of California. During January this field produced at the daily rate of 40,896 barrels with 284 wells on production.

Kern County: Rothschield Oil Company's Nunes 1 is a new location in the Jasmine area, after reporting its JOL 1, also in the Jasmine area, had been abandoned in granite at 2310 feet.

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Rocky Mountain Area

Thick Saturated Tensleep Section Found in Elk Basin

More than 80 feet of saturation cored in discovery well at South Elk Basin; important wildcats rigging up in Montana, Wyoming, Colorado and Nebraska.

South Elk Basin: Continental Oil Company's new pool discovery, 3 miles south of the prolific Elk Basin field in Park County, Wyoming, after making an initial drill-stem test in the upper Tensleep sand in which a computed flow of 148 barrels per hour of 28.5-gravity oil was tested, has found an additional 50 feet of saturation. A second drill-stem test from 6964-7029 feet open 15 minutes, recovered 4380 feet of oil with a shut-in pressure of 1725 pounds and a bottom-hole pressure of 2350 pounds. The saturated Tensleep was topped at 6961 feet and the entire section may be cored. It is expected to be as thick as the Elk Basin field, where 175 to 200 feet of Tensleep sand is found.

Fremont County: The Carter Oil Company-Kerlyn Oil Company's Indian Lands Tribal 1, 16-5n-2w, Sheldon Dome, has an interesting discovery in the Dinwoody that has shown saturation in 2 zones and the possibility of finding more in the Tensleep is believed good. A drill-stem test from 6310-6330 feet, open 1 hour, received 40 feet of 34-gravity oil and 30 feet of mud. This was the second zone testing oil. Coring is continuing below 6400 feet with the important Tensleep sand expected at around 6500 feet.

Hot Springs County: Argo Oil Corporation has spudded Government 24, SW NE NE 14-44w-98w, at Hamilton Dome in Hot Springs County, and plans to drill 3 more locations, depending on the outcome of the present well. Hamilton Dome has been a black oil producing field for several years although some semi-proven productive acreage remains to be drilled. In the same field the Westates Petroleum Corporation has made location for a north extension test in Skelton 21, NW NW 18-44n-97W.

Hageman-Pond-Hanlon's Fisher 1, C NE NE 20-43n-92w, is a new wildcat in the Kirby Creek area and the operators are completing plans to drill another wildcat at Lamb anticline in 51n-93w, Big Horn County, in a deep test to the Madison limestone.

Montana

Powder River County: Stanolind Oil & Gas Company's Northern Pacific Railroad 1, SE SW NW 27-2s-50e, 14 miles north of Broadus, is developing a drilling water supply and material is being moved in. This is the first location for a deep wildcat test of the large Powder River Basin that extends from southeastern Montana into east-central Wyoming.

Colorado

Prowers County: Union Oil Company of California is rigging up Holmes 1, SE NW NW 27-21s-46w, 8 miles north of Lamar, for a deep wildcat test of the East May Valley area, on a block of 10,000 acres.

Canada

Central Alberta Foothills Wildcat Sets Depth Mark

Imperial Oil Ltd's Coalspur 1 has reached the greatest depth yet penetrated by the drill in the Dominion. On March 23 it passed 12,056 feet, the former record depth. On March 26 drilling was proceeding in hard formation at 12,087 feet.

The Central Alberta Foothills wildcat, which had been expected to reach its Madison Limestone objective at around 10,000 feet, was in Lower Benton at that level, but entered the Blairmore at 10,690 feet, and is now believed in the Kootenay, within a few hundred feet of the Madison.

Previous Canadian depth record was set in 1943 at Shell Oil Company of Canada's Norman 1 at Jumping Pound, Southern Alberta Foothills, abandoned at 12,056 feet.

Other Canadian wells below 11,000 feet are Cities Service Oil Company & Socony-Vacuum Oil Company's Hillsborough 1, off Prince Edward Island, now waiting spring resumption at 11,688 feet; and Royalite Oil Company's Wildcat Hills 1, in the Alberta Foothills north of Jumping Pound, which was abandoned in 1944 at 11,155 feet after reaching the Madison at 11,088 feet.

Canada's deepest productive wells are Shell's 4-24-J, 9947-foot discovery at Jumping Pound, completed in December, 199) and Northend Petroleum's No. 1, 9612-foot well on the East Side Lime of North Turner Valley, completed in January, 1944.

Bata Petroleum's Ltd of Regina, Saskatchewan, has let drilling contract for 9 wells to be drilled this year in the Vera-Unity area of southwestern Saskatchewan. The company recently added about 300,000 acres of Crown Reservations to its holdings in this general area and now controls 580,000 acres in a solid block extending to the Alberta boundary.

Trans-Alberta Oil's Twin River 1, southwest Alberta Plains wildcat in 1sd 8 21-1-20w4th, has halted drilling at 3810 feet in top of Ellis with oil and gas showing through drill-fluid.

Ram River Oil's 3, Central Alberta Foothills test in 1sd 12 1-37-11w5th, has completed drilling at 5638 feet after coring 359 feet of varying porosity and oil-saturation in basal Devonian and top of Cambrian. An effort is being made to squeeze-cement off water zone at 1800 feet, after which oil-saturated section will be tested.

Norman Wells' Total Output Climbs to 1,503,695 Barrels

Total production of the Norman Wells, Canada, field to the end of 1944 was 1,503,695 barrels, of which 1,179,693 barrels were produced in 1944, and 180,953 barrels in 1943, according to the Imperial Oil Company. Production from the date of discovery (1919) to the end of 1942 was 143,049 barrels.

The field potential is approximately 5500 barrels daily. Productive limits of the field have now been established, embracing about 5000 acres. Producing depths range from 1700 to 2300 feet.

DESDEMONA — *a Lithograph by E. M. Schiwetz*

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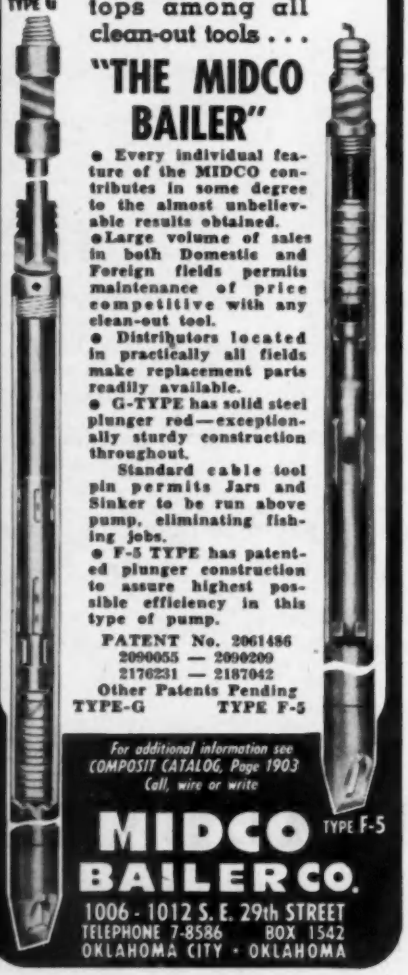

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EXPLORATORY COMPLETIONS

ARKANSAS NEW PAY TEST

Union County—El Dorado Failure: C. H. Murphy, Jr.'s Fee 1, 4-19s-15w, s flk El Dorado fld, elev 248 ft, Nacatoch 2188 ft, Tokio 2918 ft, James 3382 ft, Travis Peak 3828 ft, Cotton Valley 5337 ft, Smackover 7755 ft, abnd 7870 ft.

CALIFORNIA WILDCATS

Kern County—Failures: McDonald, Burns & Norris' Flickinger 2, 36-30s-22e, McKittrick area, abnd 5519 ft.

Rothschild Oil Co.'s J.O.L. 1, 23-25-27, Jasmine area, granite, abnd 2310 ft.

Los Angeles County — Failure: Standard's Whitehead 5, Montebello area, capped at surface, abnd 9302 ft.

Solana County—Failure: Texas Co.'s Winchester 8-1, 5-6n-4e, Lake Acres, base of Tehamana 3042 ft, abnd 4472 ft.

ILLINOIS WILDCATS

Clay County—Oil Discovery: Magnolia's Stanley 1, sw sw ne 12-4n-8e, Rosi 3003-05 ft, pump 326 bbls oil, td 3005 ft.

Franklin County—Failure: C. E. Brehm's U. S. Coal & Coke Co. 1, nw ne se 27-5s-4e, abnd 3300 ft.

Richland County — Oil Discovery: F. V. Wicker et al's Bradley 1, se se sw 25-2n-10e, O'Hara 3218-37 ft, pump 5 bbls, td 3305 ft.

St. Clair County—Failure: Homer Luttrell et al's Hagemann 1, nw nw ne 10-2n-6w, abnd 2419 ft.

White County—Oil Discovery: H. H. Weinert's Kisner 1, sw ne se 31-5s-9e, Rosi 3118-3145 ft, pump 187 bbls oil, td 3186 ft.

KANSAS WILDCATS

Barton County—Failure: Bridgeport's Huslig 1-B, nw sw nw 19-17s-11w, Arb 3350 ft, abnd 3386 ft.

Clark County—Failure: Phillips' Birdsall 1, c nw se 24-31s-23w, abnd 6295 ft.

Kingman County — Failure: Bridgeport's Amerine 1, swc 1-27s-10w, Simp 4374 ft, Arb 4467 ft, abnd 4517 ft.

Sedgwick County—Failure: Phillips' Northcutt 1, se sw ne 6-27s-4w, Simp 4013 ft, Arb 4126 ft, abnd 4164 ft.

NORTH LOUISIANA WILDCATS

Jackson Parish—Failure: Texas Co.'s Tremont Lbr. Co. 1, c ne ne sw 6-10n-1e, elev 225 ft, Wilcox 1276 ft, Midway 2010 ft, Tuscaloosa 3680 ft, Massive anhy 5182-5386 ft, James li 6100-50, Pettit 6450 ft, Travis Peak 6705 ft, abnd 7028 ft.

Natchitoches Parish—Failure: W. C. Feazel and Dewitt C. Loe's McIntyre 1, 12-13n-8w, Eagleford sd (wtr) 3100 ft, Woodbine 3328 ft, abnd 3334 ft.

SOUTH LOUISIANA WILDCAT

Cameron Parish — Failure: Continental's State-Calcasieu Lake 2, 5395 w 453 s of nec sect 1 1600 due e of State-Calcasieu Lake 1 dry hole in 1-14s-9w, abnd 9874 ft.

SOUTH LOUISIANA NEW PAY TEST

Plaquemines Parish—Potash Oil Discovery: Humble's Orleans Levee Board 1-B, start m/nly/cor sect 14 fo swly alg nwl 1850 th sely at ra 100 to lcn in 14-18s-15e, perf 10,869-79 ft, flow 267.78 bbls 31.7-gr, 0.1% wtr, 9/64-in, td 10,910 ft.

MONTANA WILDCAT

Carbon County — Failure: Carter's Bowlen C-112 No. 1, c sw ne 14-6s-19e, Colorado 6010, 1st Frontier 7425, Mowry 7700, Dakota 8380, Lakota 8716, Morrison 8742, elev 4928 ft, abnd 8921 ft.

NEW MEXICO WILDCATS

Lea County—Failure: Neville G. Penrose's Hinton 2, c sw se 12-22s-37e, elev 3350 ft, anhy 1170 ft, base salt 2400 ft, Yates 2550 ft, jkd and abnd 4700 ft.

NEW MEXICO NEW PAY TEST

San Juan County—Barker Dome Deeper Gas Discovery: Southern Union Gas Co.'s Barker Creek-Ute Indian 9, se se nw 21-32n-14w, offsetting Dakota sand gassers, 60,000,000 ft sweet 980 B.T.U. gas open flow fr Paradox (Basal Pennsylvanian) perf 8417-90, 8630-50 ft, td 9466 ft in quartzite.

OKLAHOMA WILDCATS

Cleveland County—Failures: British American's Hansmeyer 1-A, ne nw nw 14-9n-2w, abnd 7514 ft.

Gulf et al's Price 1, ne se 17-9n-3w, Vi 9018 ft, abnd 9420 ft.

Cotton County—Failure: Dug Johnson's Waldon 1, se se ne 27-2s-10w, abnd 4445 ft.

Creek County—Oil Discovery: Dale Sneed et al's Eaton 1, sw nw se (OWDD) 12-14n-10e, Dutcher sd 2550-94 ft, pump 45 bbls 38-gr, td 2595 ft.

Latimer County—Failure: LeFlore Co. Gas & Elec.'s Hardaway 4-52, nw ne 10-6n-22e, abnd 5893 ft.

Logan County—Failure: W. E. Anderson's O'Neill 1, se se se 11-19n-4w, Lov 3930 ft, abnd 4932 ft.

Oklahoma County—Failure: Stanolind et al's Van Miller 1, se se sw 2-12n-1e, abnd 6105 ft.

Pontotoc County—Failure: Joe Miller's Miller 1, sw nw sw 26-4n-4e, Viola 1425, abnd 1894 ft.

WEST TEXAS WILDCATS

Andrews County—Oil Discovery: Sun's N. C. Martin 1, c se se PSL 17, blk A-41, 2 mi n by w of West Andrews fld, elev 3314 ft, anhydrite 1479 ft, Yates sd 2730 ft, frosted grains 2740 ft, San Andres 4195 ft, Clear Fork 5590 ft, flow 301 bbls 36-gr (sweet) oil, gor 837/1, tp 500 lbs, cp 1900 lbs, via ¼-in, 6000 gals acid in Basal Clear Fork 6850-7036 ft.

Garza County—Oil Discovery: Honolulu Oil Corp.-Devonian Oil Co.'s Elmer Hitt 1, sw ne ne HE&WT Ry. 2, blk 1, 2½ mi e by n of PHD pool fr same zone but failure between, elev 2964 ft, pump 150 bbls, 1000 gals acid in San Andres 3510-43 ft, td 3573 ft, pb 3543 ft.

Menard County — Failure: Maguire Industries et al's (was B. A. Duffy's) Mayer 1, 660 ft out sec sect 1483, P. D. Bonnett sur, A-89, elev 2087 ft, Cisco 650 ft, base Palo Pinto 2950 ft, Bend 3565 ft, detrital 3960 ft, Ellenburger 3980 ft, abnd 4278 ft.

Pecos County—Failure: Milton Unger et al's Downs-Sun 1, ne ne sw H&GN Ry. 105, blk 8, elev 2470 ft, abnd 1661 ft.

Reagan County—Failure: Woodley Pet. Co.'s Knolle 1, c sw nw T&P Ry. 47, blk 36, T-5-S, elev 2684 ft, anhydrite 1290 ft, Cowden anhydrite 1825 ft, salt series 1350-1940 ft, Yates 2055 ft, li 3270 ft, abnd 3572 ft.

Yoakum County — Failure: Honolulu Oil Corp.'s Hanna 1, nw se se sect 80, blk D, J. H. Gibson sur, elev 3640 ft, anhydrite 2370 ft, brown li 4020 ft, solid li 4400 ft, abnd 5213 ft.

WEST CENTRAL TEXAS WILDCATS

Coleman County—Failure: Hunter & Hunter's J. C. Williamson 1, 330 ft out swc ne sect 10, M. M. Givens sur, abnd 4120 ft.

Fisher County—Failure: Thos. W. Doswell et al's Humphries 1, c se nw H&TB Ry. 49, blk 1, Noodle Creek li 2989 ft, abnd 3311 ft.

SOUTH CENTRAL TEXAS WILDCAT

Lasalle County — Failure: Gust Tsesmelis' Louis Yaeger 1, 330 fr s&wl sect 8 blk 16, W. H. Wallace subdvn 40-ac lse, abnd 1000 ft.

LOWER TEXAS COAST WILDCATS

Hidalgo County—Failure: Cockrell & Hurlbut's Encino Corp. 1, 900 n 600 e of swc 1029-ac lse porc 49, 5 mi sw of Mission, abnd 7126 ft.

Karnes County—Oil Discovery: Seaboard of Delaware's Sallye Treadwell 1, 1980 fr nl 660 fr el 646-ac lse, Hanry S. Brown sur, perf 7144-49 ft, flow 147 bbls cond, 19 bbls wtr, ¼-in, tp 2050 lbs, td 8005 ft.

Kleberg County—Failure: Sam E. Wilson, Jr.'s Robt. Kleberg 1, (OWDD) 467 fr n&el 480-ac lse in sect 10 King addn 3, A. Gutierrez Gr, 3 mi sw of Ricardo, otd 8359 ft, abnd 9003 ft.

San Patricio County—Gas Discovery: Stanolind's Welder Rch. Lds. 2, 4020 e 4140 s of nwc 2000-ac lse, Victoriano Tares and Pedro Villarrreal Gr, Calallen area, perf 18 shots 3375-81 ft, flow 7,500,000 gas, ¼-in, shut in, tp 1340 lbs, td 8015 ft.

UPPER TEXAS COAST NEW PAY TEST

Hardin County—Sour Lake Discovery: Earl C. Hankamer et al's Bass et al 1 125 fr wl 155 fr nl 10,275-ac unit, Stephen Jackson sur, 575 e se of Lynn 1, elev 44 ft, sand 3494 ft, perf 36 shots 3494-3508 ft, flow 207.92 bbls 39.4-gr, 9/64-in, gor 240/1, tp 640 lbs, cp 750 lbs, td 3648 ft.

EAST TEXAS WILDCAT

Upshur County—Failure: Hunt Oil Co.'s Bullard 1, 1850 ft n 450 ft w of swc of J. Henson sur, but in Lemuel R. Brown sur, elev 467 ft, Pecan 2680-3170 ft, Blossom 3377-3430 ft, Woodbine 4175 ft, Comanche sh 4465 ft, Comanche li 4480 ft, Goodland 5560 ft, Paluxy 5640 ft, Glen Rose 6010 ft, massive anhy 7286-7520 ft, Pettit 8220 ft, Travis Peak 8325 ft, abnd 8515 ft.

NORTH TEXAS WILDCATS

Archer County—Failures: Benson Bros. et al's J. Foerster 1, 930 ft ewl 1489 ft nsl blk 73, Harris subdvn, abnd 1502 ft.

D. H. Bolin et al's Harmel 1-A, 841 ft snl 150 ft ewl of TE&L Co. sect 2491, abnd 1490 ft.

F. L. Harvey et al's Duckworth 1-A, 150 ft n 1500 ft w of nwc blk 11, but in blk 6, J. W. Harris subdvn, abnd 1397 ft.

F. L. Harvey et al's Duckworth 1-B, 2500 ft ewl 750 ft snl of blk 11, Harris subdvn, abnd 1385 ft.

King County—Failure: Humble's J. H. Johnson 1, 990 ft nsl 660 ft wel sect 44, F. P.

Knott sur A-899, elev 1597 ft, abnd 6245 ft.

Throckmorton County — Failures: Bridwell Oil Co.'s Morrison 2, 150 ft snl 2900 ft wel of TE&L Co. sect 1641, abnd 1806 ft.

H. M. Kelleher et al's Putnam 1, 1532 ft e 212 ft n of nwc sect 25, but in sect 26, Comanche Indian Reservation, abnd 1150 ft.

Young County—Failure: Shell's Huffman 1, 330 ft out nwc of 143½ ac of TE&L Co. sect 1442, elev 1176 ft, Bend 4158 ft, Mississippi 5116 ft, Marble Falls 4593 ft, Ellenburger 5208 ft, abnd 5278 ft.

WYOMING WILDCAT

Albany County—Failure: Wasatch Refinery's Govt. 1, c se ne 15-16n-74w, Bamforth Lakes area, Tensleep 2340 ft, abnd 2812 ft.

WILDCAT STARTS

ARKANSAS

Columbia County: McAlester Fuel's C. B. Couch 1, c nw sw 11-16s-20w, lcn.

CALIFORNIA

Fresno County: Jacalitos Oil Co.'s Plaugher 1, 30-21s-16e, Jacalitos area, lcn.

Los Angeles County: Capital Co.'s Cole 1-3, 11-2s-11w, Turnbull Canyon area, lcn.

Loren H. Hillman's W. Hawthorne 1, 17-3s-14w, Hawthorne area, lcn.

Union Oil's Sausinena 15, 30-2s-10w, La Harbra area, lcn.

Union Oil's Las Llajas core hole 1, 22-3n-17w, Las Llajas area, lcn.

Western Gulf's W. E. Stevens B-1, 5-4n-17w, Oak Canyon area, lcn.

Kern County: Amerada's S.P. 23-23, 23-29s-29e, Ant Hill area, lcn.

B & R Oil Co.'s Adams 1, 14-27s-27e, McVan area, lcn.

General Pet.'s Kernway 64-1, 1-29s-26e, Saco area, lcn.

Harp & Brown's Chandler 1, 35-25s-20e, Los Hills area, lcn.

Los Nietos Prod. & Ref. Co.'s South Dome 1, 13-25s-19e, lcn.

Richfield Oil's Valley Agriculture 1, 7-31s-30e, DiGiorgia area, lcn.

Richfield Oil's Nunes 1, 25-25s-27e, Jasmine area, lcn.

Orange County: Delaney Pet. Corp.'s Karales 2, 19-6s-10w, Costa Mesa area, lcn.

San Luis Obispo County: Rankin & Taylor's Jack 1, 17-25-16, Cholame area, lcn.

Yolo County: Superior Oil's Corcoran 1, 5-8n-1e, Davis area, lcn.

Texas Co.'s Dunnigan 14-1, 12-10n-1w, Dunnigan area, lcn.

FLORIDA

Bay County: Magnolia's State Block 4B-1, c sw sw 21-3s-15w, bldg rd.

Gulf County: Pure's Kate Gaskin 1, 585 ft s 381 ft e nwc ne nw 19-5s-9w, clearing lcn.

ILLINOIS

Jasper County: Pure's Boos 1-B, nw ne nw 28-6n-10e, lcn.

Wabash County: Walter Duvean's J. Woolard 1, nw sw ne 36-1s-13w, dr.

White County: Magnolia's Williams 1, sw nw nw 18-4s-9e, lcn.

Phillips' Pearce 1, se se se 35-6s-10e, lcn.

INDIANA

Posey County: Bristol Hackbush's Goedee 1, (OWWO) ne ne sw 24-5s-12w, lcn.

KANSAS

Barton County: W. L. Hartman's Southern 1, se se sw 3-20s-12w, rur.

Ellis County: Gulf's Margaret 1, c s½ ne se 19-13s-16w, woc.

McPherson County: Republic Nat. Gas' Ruth 1, nec sw 13-18s-1w, lcn.

Norton County: Helmerich & Payne et al's Hansen 1, c sw nw 26-5s-21w, dr.

Pawnee County: Vickers Pet. Co.'s Hartman 1, nw nw sw 7-22s-15w, mirt.

Reno County: Kingwood Oil Co.'s Hilger 1, nw nw ne 29-26s-4w, lcn.

Rooks County: Palmer Oil Co.'s Denio 1, se sw se 9-8s-16w, rur.

Russell County: Kingwood Oil Co.'s Hoover Est. 1, ne nw sw 36-13s-14w, rng pipe.

Wyandotte County: Kelley et al's Kronne 1, c sw nw 6-10s-23e, dr.

NORTH LOUISIANA

Natchitoches Parish: Douglas Whitaker and Robert A. Stoey's Rhodes Unit 1, 907 ft s 795 ft e of nwc ne¼ of sect 33-9n-9w, permit.

SOUTH LOUISIANA

St. Mary Parish: Humble's Miami Corp. 1G, start USCGS Station "Twin" go e 8798 th s 8387 to lcn in T-16s-8e, 12,000-ft test.

MISSISSIPPI

Rankin County: Carter's Nelson Estate A-1, c sw ne ne 15-4n-5e, 8000-ft test.

Jones County: Gulf's E. S. Gambrell 1, 634 ft s 1832 ft w ne 34-10n-14w, rig.

MONTANA

Powder River County: Stanolind's N.P.R.R. 1, se sw nw 27-2s-50e, lcn.

NEBRASKA

Dawes County: Amerada's State of Neb. 1, c ne se 16-33n-49w, mirt.

NEW MEXICO

Lea County: Neville G. Penrose's Hinton 3, c se sw 12-22s-37e, 6500-ft Clear Fork test, dr 1695 ft.

OKLAHOMA

Bryan County: Tom B. Owens' Hank 1, c se se 25-7s-11e, lcn.

Caddo County: Sinclair Prairie's Hall 1, nw nw se 36-7n-13w, lcn.

Cleveland County: J. E. Trigg Dr. Co.'s Gray 1, sw ne 29-9n-1w, lcn.

Comanche County: Texas Co.'s Weaver 2, sw nw se 19-4n-10w, rur.

Garfield County: Sinclair Prairie's Webber 1, nw nw nw 28-20n-4w, bldg rig.

Seminole County: C. W. Davy's Yahola 1, ne sw sw 9-7n-6e, lcn.

Okfuskee County: Sunray Oil's Wilson 1, se se sw 2-13n-7e, lcn.

Payne County: Wilcox Oil Co.'s Ross 1, se se sw 29-19n-6e, bldg rig.

Stephens County: Smith & Grimes' Butts 1, se nw nw 31-2s-6w, lcn.

WEST TEXAS

Gaines County: Humble's Eubanks-Humble 1-B, 660 ft ewl 2216 ft snl of s¾ of PSL sect 6, blk AX, 2⅝ mi nw Doss fld, lcn 7500-ft Clear Fork test.

Honolulu Oil Corp.'s Dora Cunningham 1, c nw se W.T. Ry. sect 89, blk G, 1¾ mi s by w of a Yates wildcat gasser, lcn 5700-ft San Andres test.

Glasscock County: Union of Cal.'s Sally Edmondson 1, c sw sw W&NW Ry. 210, blk 29, lcn 3500-ft cable test.

Martin County: Magnolia's Wolcott 1, 1650 ft out nwc Lge 252, Ward CSL sur, rur for 6000-ft Clear Fork test.

Midland County: Seaboard Oil Co.-Standard of Texas' Andy Fasken 1, c sw ne T&P Ry. 7, blk 36, T-2-S, lcn for 5000-ft test.

WEST CENTRAL TEXAS

Coleman County: Ungren-Frazier et al's M. V. McDaniel 1, 330 ft snl 1740 ft wel sect 26, HT&B Ry. sur, lcn 1850-ft cable test.

Stephens County: Sinclair Prairie's Oma Repass 1, 860 ft nsl 330 ft wel TE&L Co. sect 1066, lcn Ellenburger test.

SOUTH CENTRAL TEXAS

Atascosa County: Quintana Pet. Co.'s C. Muil 1, 2714 fr nel 5000 fr sel 1589-ac lse, J. C. Mattison sur 467, lcn.

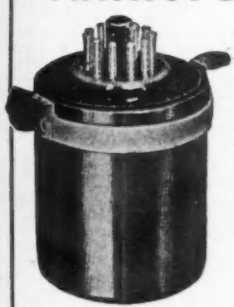
LOWER TEXAS COAST

Bee County: Dash Prod. Co.'s Holzmark 1-C, 5150 fr nel 2725 fr nwl J. A. York sur A-333, dr 2000 ft.

TEXAS GULF COAST

Grimes County: R. F. Spears and Geo. P. Lawrence (Northern Ord.) J. E. Quinn 1-A, (OWWO) 6580 fr sl 9200 fr wl S. F. Austin

GEOPHYSICAL TRANSFORMERS



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1 National Drilling Machine consisting of all sills, new mast, new fibre friction pulley, belt, reverse clutch, beam, new temper screw, new wire line clamps.
1 No. 45 Star Spudder now running with TXA Hercules Motor.
1 TXO Hercules Motor re-built and re-conditioned.
1 International 100 HP Motor re-conditioned, good as new.
Short drilling bits and some odds and ends in cable tools.
All of above worth the price. Address P. O. Box 247, Owensboro, Ky.

■ **For Sale: One (1) steel beam type drilling-in unit with 110 HP Buda engine, A type mast, drilling and sand lines and Miscellaneous tools —Veeder Supply & Development Co., Cherryvale, Kansas.**

FOR SALE

1 6¾" x 14" reconditioned EXK Gardner Denver Power Pump, with sheave.
2 7¾" x 18" Sixteen valve Oil Well Power Pump, less sheaves.
1 14¼" x 7¼" x 18" National Steam Pump.
1 12" x 12" roller bearing Ideal Ajax Steam Engine, with or without seven foot substructure.
1 4 sheave 66" roller bearing National Traveling Block.

EMPIRE OIL FIELD MACHINERY CO.
Odessa, Texas
Telephone LD-18 P. O. Box 4026

MEXICAN HACIENDA—376,360 Acres!
Located NE corner State of Durango, 200 mi. below Texas border, serviced by Light, Power, Phone, Highway. Rectangle 19 x 35 miles of choicest table lands, with rich deep soil ideal for Grains, Alfalfa, Cotton, & Cattle. Report on OIL geology, made in 1911, indicates excellent structure. This huge ranch held intact by same wealthy Owner for 35 yrs., but now suddenly offered for 70c acre. Write J. K. McDonald, 7063-Lanewood Ave., Hollywood (28), Cal.

■ WELL DRILLING machines, cable tools, bits, stems, jars, cable, bailers, blocks, elevators, engines, boilers, fishing tools. Write S. W. Pressey, Pueblo, Colo.

■ FOR SALE: Power Rig and Derrick, complete less drill pipe, powered with two GAK Waukeshas. Oil bath draw works, Wilson Snyder Pump, suitable for workover or drilling. Call or write R. O. Harris, Eunice, Louisiana.

■ FOR SALE: 75 Type 40 New Rolagrip Couplings Complete, Without Priority Rating. Utility & Industrial Supply Co., 921 Michigan Ave., E., Jackson, Michigan.

■ FOR SALE: New 384' 6" 23.50 lb. 8 thd. Emsco Screen Pipe; New 209' 5-3/16" 17 lb. 11½ thd. Inserted Emsco Screen Pipe; New 169' 4¼" 13.75 lb. 10 thd. Emsco Screen Pipe. E. E. Eversole, Box 386, Healdton, Oklahoma.

■ FOR SALE: 1—Mead-Morrison Double-Drum Hoist with 53 H.P. Buda Gas Engine. Drums 14" diam. 27" wide, mounted on skids. Perfect condition. R. W. Merrick, P. O. Box 918, New Orleans 8, Louisiana.

■ FOR SALE: Oil and gas leases on structure and in shallow territory. Will furnish one or more leases for drilling contracts. W. P. Harley, Bowling Green, Kentucky.

■ 1—13½ x 20—Bessemer Compressor Cylinder, $400.00; 4—12 x 12—Ingersoll-Rand Compressor Cylinders, $200.00 each. Lesh & McCall, Nocona, Texas.

SERVICES

WM. M. WELLS
Geophysicist

Seismograph Reviews
And Interpretation
Gravity Meter Surveys

209 First National Bank Bldg.
Shreveport, Louisiana

HELP WANTED

—WANTED—

MECHANICAL AND ELETRICAL ENGINEER

Oilfield Equipment Manufacturer of International prominence located in Beaumont, Texas, desires to employ qualified Mechanical or Electrical Engineer to assist in the design of D.C. Electric Drilling Rigs. Good salary, with unlimited post-war possibilities. All answers strictly confidential. Address: Box 6, c/o The Oil Weekly, Houston, Texas.

■ **Wanted by a consulting geophysical organization, Petroleum Engineers with Hayward Mudlogging experience or its equivalent. Immediate openings in Venezuela. Excellent opportunity for advancement to managerial positions throughout the world. Address: Box 36, c/o The Oil Weekly, Houston, Texas.**

■ **Engineers Wanted: Graduate Ch.E., M.E. or E.E., 20 to 29 years of age, having refinery or laboratory experience. Essential industry with postwar continuance. State education, experience, salary expected, and date of availability. P. O. Box 2546. Houston 1, Texas.**

■ GEOPHYSICAL SUPERVISOR wanted by major oil company operating in Mid-Continent and Gulf Coast, to assist in supervision of geophysical contract crews and interpretation of field data. Permanent location in Houston, Texas. Must have considerable experience as seismic party chief. Geological training desirable but not required. State in first letter age, salary expected, draft status, date available, furnish education and experience record. War Manpower Commission compliance required. Our employees know about this ad. Address: Box 12, c/o The Oil Weekly, Houston, Texas.

MAJOR OIL COMPANY WANTS GEOPHYSICAL PARTY FIELD AGENT—GOOD POSITION FOR RIGHT MAN

Experience in South Louisiana marsh and water areas important. Some technical knowledge and experience with boats desirable. Apply by letter giving experience and references. Interview to be arranged. Address: Box 17, c/o The Oil Weekly, Houston, Texas.

MECHANICAL ENGINEER

Nationally known oil field equipment manufacturer will employ qualified mechanical engineer, familiar with well completions, to assist in the design of production equipment. Permanent with excellent future to the right man. Locality, Houston. Replies strictly confidential. Address: Box 10, c/o The Oil Weekly, Houston, Texas.

Did you know that more men exclusively engaged in the drilling-producing business subscribe to **The Oil Weekly** than to any other paper? If you want to buy, sell or exchange good used equipment, a low-cost advertisement in these columns will get action for you in a hurry. See rates below.

ADVERTISING RATES

TRADING POST SECTION

Regular classified advertisements for this special section, set in type this size without border, take flat-rate of 7 cents per word for the first insertion and 5 cents per word for each subsequent insertion of same copy. Display advertisements for this section, set in suitably larger type with ruled border, are $5.00 per inch for the first insertion and $4.00 per inch for subsequent insertions. Remittance must accompany copy which should be sent to:

Trading Post Section, The Oil Weekly
P. O. Box 2608 Houston 1, Texas

sur, blk 17, 1080-ac lse, c 40-ac blk, Yarboro area.

Harris County: Houston Oil Co. of Texas' Carter Investment Co. 1, 1920 w of Carpenter's Bayou 2022 n of sly sl of 1296.5-ac lse 467 n of sl of Talbott Patching sur, 1325 e of Frazier and Bunte's 4717 dry hole on same lse, Sheldon area, lcn.

Newton County: Humble's W. W. Moore, Jr. 1, 3660.6 fr sl 467 fr wl A. L. Stark sur, 970-ac tr out of 2654-ac lse, 2¼ mi sw of Bon Weir, 13,000-ft test.

Harrison County: Roger Lacy's Tutle 1, J. M. Clifton sur, 2 mi n of Marshall City, 6500-ft test, clearing lcn.

EAST TEXAS

Hopkins County: Homer W. Snowden et al's J. W. Warren 1, 292 ft snl 2480 ft ewl of John Bryan sur, 3¼ mi se Cumby, mim for Paluxy test.

Rusk County: Texanna Drl. Co.-H. A. Clark & Jeff Bolton's Kangerga Bros. 1, 330 ft out sec of 53-ac tr and B. W. Heath sur, lcn 4000-ft test.

NORTH TEXAS

Archer County: P. C. Burns et al's D. W. Fish 1, 150 ft ewl 1050 ft nsl blk 78, J. W. Harris subdvn, lcn 1500-ft rotary test.

C. Y. Gorman et al's J. L. Jackson 1, 150 ft out swc sect 20, ATNCL sur, lcn 2000-ft rotary test.

D. H. Bolin et al's H. A. Harmel 1, 1885 ft wel 1835 ft nsl of TE&L Co. sect 2459, lcn 1500-ft rotary test.

W. H. Peckham et al's L. F. Wilson 1, 2173 ft wel 467 ft snl of lot 2, sect 122, ATNCL sur, lcn 4300-ft Strawn test.

Geo. W. Cooper et al's W. P. Ferguson 1, (new pay test) ne nw se S.P. Ry. sect 2, A-1200, offsetting shallow wells, 5200-ft Ellenburger test, dr 2385 ft.

Cooke County: Kerlyn Oil Co. et al's I. E. Norman 1, 330 ft s 304 ft e of sec of O. E. Powers 91.4-ac tr, but in Joseph Bush sur A-107, 1⅝ mi sw of Woodbine, lcn 4300-ft Ellenburger test.

Nu-Enamel Oil Operating Co.'s E. G. Ramsey 1, 1250 ft snl 1320 ft ewl of T. J. Hutchinson sur A-1677, 2½ mi sw of Marysville, lcn 2500-ft rotary test.

Throckmorton County: Bridwell Oil Co.'s Joe Cook 1, 150 ft s&w of m/s/sec of sect 3, but in sect 1, J. D. Hardin sur A-209, lcn 1350-ft rotary test.

Wichita County: V. A. Fisher-Frank Wood's S. C. Krohn 1, 600 ft snl 150 ft ewl of e½ blk 220, Waggoner Colony Lands, lcn 2000-ft rotary test.

Young County: Wilmac Oil Co.'s W. F. Keathley 1, 150 ft out sec TE&L Co. sect 153, lcn 1000-ft test.

WYOMING

Hot Springs County: Hageman-Pond-Hanlon's Fisher 1, c ne ne 20-43n-92w, lcn.

CANADA

California-Standard Co.'s Conrad-Province 71-4A, se lsd 4 4-6-15w4th, ru.

West Taber: Standard of British Columbia-Nassau Exploration's Taber-Province 45-15A, sw lsd 10 15-9-17w4th, ru.

LEASES, DRILLING ACREAGE, ETC.

■ **So. Georgia shallow sand leases for sale. Blocks 1—5—10—15—20—25 thousand acres. Owners: Box 364, Waycross, Georgia.**

NOTICES

■ **CAPITAL SEEKERS—Interested in raising $25,000 or more should write to Amster Leonard, Fox Bldg., Detroit 1, Michigan.**

■ **ALABAMA—New township and section map of Butler County, Alabama, showing major company leases. Hand colored. Send $1.00 now for your copy. W. H. Vernor, 601½ E. Commerce St., Greenville, Alabama. (Phone 444).**

■ Wanted the public to know of the vast oil possibilities in Dickson County, Tennessee. Oil and gas have been struck several places digging for water. Water and rail transportation convenient. Write: J. M. Hutchins, Route 2, Charlotte, Tenn.

■ Have patent simple device for recording deviation of hole on drilling wells. Operates while drill pipe rotates eliminating hazard of stuck pipe while surveying hole. Desire contact manufacturer interested perfecting, manufacturing, selling to oil industry. Address: Box 18, c/o The Oil Weekly, Houston, Texas.

WILL BUY OIL PAYMENTS

SELECTED OIL PROPERTIES, INC.

111 Broadway, New York 6, N. Y.

SQUEAKS FROM THE BULL WHEEL

He'll See Red

"Are you going to let that red-head steal your boy friend?"

"Never. I'll dye first."

Standco
NO-SMOKE

STANDCO BRAKE LINING

Is the driller's best friend because it makes the easiest brake known and "feeds off" evenly while drilling. It never scores brake rims. See page 2808 Composite Catalog.

Standco Brake Lining Co.
HOUSTON

William M. Barret, Inc.
Consulting Geophysicists

Specializing In Magnetic Surveys

contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique

GIDDENS-LANE BUILDING
SHREVEPORT, LOUISIANA

HOUSTON LABORATORIES
Analytical and Consulting Chemist
Podbielniak Gas Analysis

Oil Field Brines, Waters and Cores
Complete Evaluation of Crude Oils

Long Distance 267. Box 132. Houston, Tex.

THE FORT WORTH LABORATORIES

Analysis of oil field brines, cores, gas, oil and minerals. Field gas testing. R. H. Fash, Vice President; Long Distance 138 823½ Monroe Street, Fort Worth, Texas

MAILING LISTS

Producers, Refiners, Natural Gasoline Mfrs., Pipe Lines, Drilling Contractors, Supply Companies, Machine Shops, Manufacturers' Agents. Send for catalogue.

OIL INDUSTRY MAILING LIST CO.
909 Tulsa Loan Bldg. Tulsa, Okla.

BAIRD

SEATS and BALLS

- Available in a grade to meet the individual well pumping problem.
- Furnish longer continuous runs.
- Fewer pulls for replacement.
- Insure more fluid lift economy.

Sold thru Supply Stores

BAIRD MANUFACTURING COMPANY
OIL WELL PRODUCTION EQUIPMENT
TULSA

Poet's Nook

I had sworn to be a bachelor,
She had sworn to be a bride;
But I guess you know the answer:
She had nature on her side.

Encore

Say it with flowers, say it
with sweets
Say it with kisses, say it
with eats
Say it with jewelery, say it
with drink
But never, oh never, say it
with ink.

Sign of the Times

"You've got to hand it to Jim when it comes to petting."

"Lazy, huh?"

How Does He Bear It?

Three bears were walking on the desert.

Papa Bear sat on a cactus and said, "Ouch!"

Mama Bear sat on a cactus and said, "Oh!"

Baby Bear sat on a cactus and said nothing.

"Gee," said Papa Bear, "I hope we're not raising one of those Dead End Kids!"

Fast Pickup

"You can't arrest me. I come from one of the best families in town."

"The heck I can't. I'm arresting you for speeding—not breeding purposes."

Solves Laundry Problem

"I drank some sulphuric acid by mistake last night."

"Got a hangover?"

"No, but every time I blow my nose it leaves a hole in my handkerchief."

Heirloom

"What lovely antique furniture. I wonder where Mrs. Smith got that huge settee?"

"Well, they tell me her mother was built the same way."

This Curious World

It's easy to pick out the best women and pick up the worst ones.

A bird in the hand is bad table manners.

A certain WAVE wants it known that she's a Seaman Second but a lady first.

Figures don't lie, but girdles keep a lot of them from revealing the truth.

Many a lawyer sits up all night trying to break a widow's will.

If you're just a pebble in your girl's life, why not try to be a little boulder?

Sad Hamburger

Hear about the butcher who backed into the meat grinder and got a little behind in his orders?

Ask the Japs

"I'm going to see a masseur."

"What's that?"

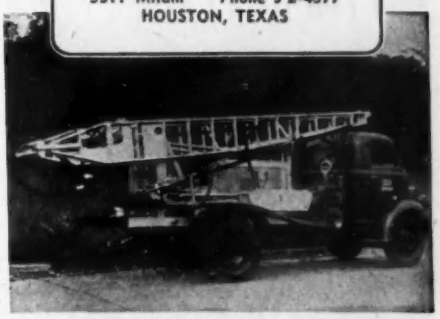
"A man who pinches you all over."

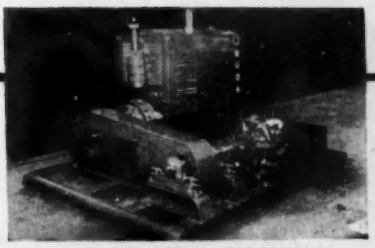
"Huh, that's not a masseur. That's a marine."

FOR SALE OR LEASE

Core Drills
Shot Hole Drills

ROUSE Manufacturing Company
3511 Milam Phone J 2-4377
HOUSTON, TEXAS





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built to Customer's Specifications

TOM NILAND Equipment Co.
PHONE C-4-4703
P. O. BOX 1453 HOUSTON 1, TEXAS

MANUFACTURERS OF: ASSEMBLED UNITS ON SKIDS • SAFETY MACHINERY GUARDS • PANEL BOARDS • STEEL PRODUCTS MADE TO THE CUSTOMER'S SPECIFICATIONS.

YOUR XMAS TREE IS ONLY AS SAFE AS ITS FITTINGS

Specify UNIBOLT tees, crosses and chokes for your trees . . . they have an even higher safety factor than ring joint flanged unions, but weigh less and are more economical.

UNIBOLT
THE ONE BOLT COUPLING

THORNHILL-CRAVER COMPANY
HOUSTON

LUFKIN

"ANCHOR"
CHROME CLAD
THE OILMAN'S CHOICE

ONE HALF
INCH LINE

You know and we know that a measuring tape for oil field work has to be built for heavy duty service. And the Lufkin "Anchor" is just that kind. It's heavy plated half-inch line has large, jet black markings that stand out (and stay that way) against a satin chrome surface that won't rust, crack, chip or peel. Easy to read in any kind of light. Get Lufkin "Anchor" from your supply house. Write for free catalog.

LUFKIN

SAGINAW, MICHIGAN • New York City
TAPES · RULES · PRECISION TOOLS

MEN IN THE INDUSTRY NEWS

H. J. STEWART has been named engineer for Sunray Oil Corporation's Gulf Coast Division with headquarters at Victoria, Texas.

LOUIS R. HODELL, former chief of production research for The Carter Oil Company at the Tulsa laboratories, has returned after more than two years of military service and has been transferred to Caracas, Venezuela, as research co-ordinator for Creole Petroleum Corporation.

MAJOR JAMES STEWART SLACK, Jr., former junior petroleum engineer for The Carter Oil Company, has been reported missing in action in the Asiatic theater. He was pilot of the B-29 plane "Rush Order," and had been awarded the Distinguished Flying Cross.

ALVA W. GORMAN, research engineer for Phillips Petroleum Company, has been transferred from Borger, Texas, to Bartlesville, Oklahoma.

E. W. SCUDDER has been named head of the land and geological department of the J. M. Huber Corporation, Denver, following his resignation from Gulf Oil Corporation after 23 years in that company's geological department.

WELDON HILL, for the past 15 months public relations director and editor of publications of the Independent Petroleum Association of America, Tulsa, has joined the staff of THE OIL WEEKLY as Gulf Coast editor. Prior to his IPAA connection, Hill for many years was oil editor of the Houston Post.

E. K. FRANK, president of the Mid-Continent Map Company, spoke before the Engineers Club of Tulsa on "Microfilm and Its Practical Application," stressing its advantages to engineers and draftsmen. S. W. Cobb, Barnsdall Oil Company, presided.

M. A. TURPIN of Black, Sivalls & Bryson, tank manufacturers, talked on "Inspection and Maintenance of Pressure Vessels" before the Tulsa Chapter, Petroleum Safety Council, American Society of Safety Engineers.

SPENCER W. ROBINSON, formerly editorial director of the Gulf Publishing Company, publishers of The Oil Weekly and Petroleum Refiner, and more lately Director of Public Relations of the Petroleum Administration for War, has joined the advertising firm of Davis and Dyke of Houston, an advertising agency which specializes in accounts selling to the oil industry. Robinson resigned his position with PAW a short time ago to enter private business.

Spencer W. Robinson

GEORGE S. TAYMAN has joined the Federal Power Commission as natural gas engineer in the Division of Rates and Research, Bureau of Accounts and Finance. He formerly was natural gas engineer in the Office of War Utilities, War Production Board. Before going to Washington he was with the Union Gas System, Inc., of Independence, Kansas, and one of its predecessor companies, the Owen-Osage Oil and Gas Company, for 22 years.

George S. Tayman

MISS LEATRICE HOLLENBECK, who has been on leave of absence from Sunray Oil Corporation as a member of the Public Relations staff of the Petroleum Administration for War, and research analyst, department of information, American Petroleum Institute, has returned to Tulsa from Washington, D. C., to become editorial director and head of Sunray's information department.

JAMES S. MERIWETHER, Shell Oil Company, was elected president of the West Texas Oil Scouts Association, a unit of the national organization. James R. Maedgen, Skelly Oil Company, and James S. Lock, The Pure Oil Company, both of Midland, were chosen vice presidents, while Orville L. McNew, Amerada Petroleum Corporation, also of Midland, was re-elected secretary-treasurer.

EDWARD E. WATTS has been promoted from assistant to district landman for Sinclair Prairie Oil Company in the Permian Basin with headquarters at Midland, Texas. He succeeds C. W. Chancellor, who terminated 17 years of service with the company to operate an office supply firm. P. C. Andrews, formerly of Corpus Christi, will be assistant to Watts.

R. G. PATTILLO and R. W. Rawlings of Monahans, Texas, and A. C. Magee of Grand Falls, Texas, have organized R. G. Pattillo, Inc., with headquarters at Monahans to operate as producers and drilling contractors.

S. F. SHAW, consulting engineer, has joined the faculty of Texas A. & M. College as a professor of petroleum engineering.

H. W. HARTS, vice president in charge of manufacturing for Warren Petroleum Corporation, Tulsa, spoke before the Purchasing Agents Association of Tulsa on "Liquefied Petroleum Gases" in which he discussed the chemical formulae of the by-products and some of their uses in relation to the war effort and for civilian purposes.

ROBERT F. FARMER, sales and service engineer for Cameron Iron Works, Inc., showed a silent color film entitled: "Union Sulphur Gueno 1" depicting the extinguishing of an 80 million foot gasser, at the meeting March 19 of the Engineers Club of Tulsa.

PETE M. MARTIN, North Texas district geologist for Continental Oil Company, has resigned to operate as a consultant and independent with headquarters at Wichita Falls. He is succeeded by W. C. Northcutt, who has been located at Ponca City, Oklahoma, headquarters.

C. A. NEWLAND has been made assistant division manager of the North Carolina division of the Standard Oil Company of New Jersey. J. L. Wright, recently promoted to division manager, formerly was assistant division manager.

Newland comes to North Carolina from West Virginia, where he was assistant division manager for the Standard Oil Company of New Jersey.

W. H. HARRISON, Dallas producer, and Thomas Y. Banks, Tyler, Texas, have organized the Harrison Drilling Company with capital stock of $5000.

GEORGE L. NYE, former chief engineer for Tide Water Associated Oil Company at Oklahoma City, has joined the City National Bank, Houston, as head of the firm's new oil and gas department.

MURRAY ROBINSON, Oklahoma City attorney, addressed the Oklahoma City Geological Society on oil and gas legislation pending before the Oklahoma legislature.

P. E. LAKIN, vice president in chage of marketing, and Dr. E. F. Davis, vice president and chief consulting geologist, have been elected to the board of directors of Shell Oil Company. Lakin makes his headquartes in New York, and Davis, in Los Angeles. In 30 years with Shell, Lakin has risen from a clerk in the company's Seattle office to his present position, having been cashier, chief clerk, and salesman of the Seattle Division office, later assistant division manager, president of a subsidiary company, general sales manager, and finally vice president in charge of marketing. Dr. Davis joined Shell's exploration department in 1919, and rose to be vice president in charge of geology and production in Shell's Pacific Coast territory. Last August he became chief consulting geologist.

FRANK N. SHRIVER of Shell Oil Company, Houston, has been named general chairman of the executive committee of Mid-Continent Oil and Gas Association's committee on state and local taxation.

E. SOUCHON has been named vice president in charge of operations and Andre J. Stoll, secretary-treasurer for Schlumberger Surenco, S. A., Apartado 1608, Caracas, Venezuela, the Schlumberger services in Venezuela, Colombia, Ecuador, Trinidad, Cuba and Hispanola.

WILLIAM F. McCANDLISH, Hercules Powder Company explosives salesman who was captured by the Japs in Manila in 1942, was among those freed when United States troops captured the Los Banos prison camp.

McCandlish, who joined Hercules in 1916 and was working out of Hercules' San Francisco office, was on a periodic business trip to the Philippines when the Japs took the islands.

SOL SMITH, for the past three years connected with the chemical warfare service at the Huntsville, Alabama, arsenal, has joined Magnolia Petroleum Company as a district engineer in the natural gas department, Vanderbilt, Texas.

JOSEPH A. GILL of The Carter Oil Company legal department in Mattoon, Illinois, has been transferred to Tulsa.

Deaths

W. H. NELSON, pioneer Kansas oil operator, died at Arkansas City, Kansas, March 24. Nelson, 95, was one of the oldest members of the industry in the mid-continent area. He opened the Sedan and Prue oil pools in Kansas and at one time was associated with Charles Shaeffer in an oil company bearing that name which later became the Deep Rock Oil Corporation of Tulsa.

DOUGLAS BALTHIS, president of Natural Gas Equipment, Inc., died in Glendale, California, March 18. He was 47 years old. He helped organize his company in 1924, and later became head of the concern and was active in the manufacture of gas appliance equipment for oil field use. He was a member of the National Petroleum Institute, and Pacific Coast Gas Association.

CHARLES C. STAITI, vice president of the Houston-Oklahoma Oil Company, died March 23 in Houston. He was 65.

GATKE Brake Blocks Pay Double NOW!

The *Extra Performance Qualities* of GATKE Brake Blocks *are life savers* in these days of critical man power and material shortage.

The *great holding power* with *smooth, non-grabbing action* at all depths gets the job done *quicker* with reduced strain on men and equipment.

Long wear life with reduced flange wear facilitates *continuous* operation and *avoids maintenance.*

Avoid substitutes. Your Rig Manufacturers have GATKE Brake Lining that's engineered for the job.

GATKE Brake Blocks are made in many types to meet all service requirements of Oil Field Equipment.

Their Extra Performance Qualities result from nearly 30 years specialized development to meet changing requirements of Oil Field Service.

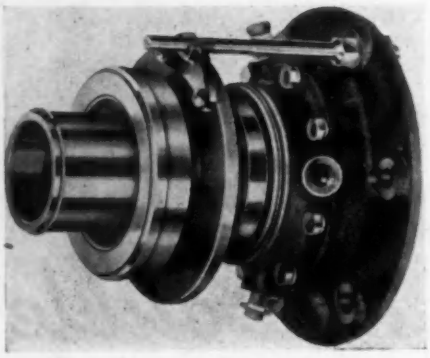
When your rig is GATKE-equipped, you have the best.

GATKE CORPORATION
228 N. LaSalle St. Chicago 1, Ill.

Pesco Hydrolease
PESCO PRODUCTS COMPANY

Pesco Products Company, 11610 Euclid Avenue, Cleveland 6, announces the Pesco Hydrolease, a clutch-actuating device by means of which hydraulic actuation of heavy-duty clutches is possible.

By substituting a hydraulic tubing connection to the master cylinder for



the linkage of the conventional mechanical actuation apparatus, this device eliminates many working parts with their points of lubrication, saving weight and cost and assuring maximum smoothness and responsiveness of hydraulic operation.

The unit has a constant adjustment feature which makes for uniform wear as well as longer life for plate linings and vital clutch parts.

Bethlehem Inaugurates Plan For Veterans Reemployment

Bethlehem Supply Company, Tulsa, Oklahoma, announces appointment of W. M. Sanders as veterans' counsellor as part of a plan recently adopted by the company for the employment of veterans of World War II. He is manager of the Industrial and Public Relations department for Bethlehem Supply Company and American Well and Prospecting Company, both Bethlehem Steel Company subsidiaries.

Sanders was with Taubman Supply Corporation, a predecessor company of Bethlehem Supply. When Bethlehem Supply Company acquired the former company, he became auditor and assistant secretary.

Improved Electric Blasting Caps Announced by Du Pont

E. I. duPont de Nemours and Company, Wilmington, Delaware, announces that all electric blasting caps being produced by the company have two improvements: nylon-insulated wires and rubber plug closures.

The wire covering of tough, abrasion-resistant nylon is the equal of enamel insulation in preventing current leakage. It is not affected by extreme or rapid changes in temperature and is in brilliant colors, minimizing the possibility of error in connections.

In addition to reducing the possibility of misfires, the new wires are clean to handle and resist kinking. Formerly, blasting cap wires were covered with impregnated cotton.

The rubber plug closures, double crimped in the shells, replace the combination of bridge plug, asphaltic waterproofing and sulphur seal, thus increasing resistance to water penetration. The new shells are much shorter than the old type without sacrificing explosive strength. Thus priming is made easier and safer.

Dresser Opens New York Offices for Member Firms

Dresser Industries, Inc., New York City, has opened consolidated domestic and export sales offices for the member companies.

Fifteen offices, in addition to a reception room, conference room, and stenographic room, occupy 6000 square feet of floor space and will also provide New York headquarters for visiting officers of Dresser companies. An auditorium seating 250 is additionally available.

General Contracting Firm Opens Wichita Falls Office

General Contractors of Texas is the firm name of a new concern which has been established in Wichita Falls to engage in building sewer and water systems, and in general contracting work.

The partnership is made up of D. D. Vaughn, F. S. Cochran, and M. E. Conkling, and personnel consists of experienced oil and gas pipe line men, dirt moving operators, and specialized transit water pipe men.

Wins "E" Award

Marmon-Herrington Company, Indianapolis, Indiana, was awarded the Army-Navy E recently in formal recognition of its notable record in the production of war equipment.

Protective Sleeves Coating

The B. F. Goodrich Company, Akron, Ohio, has developed a fabric coated with vinyl resin and is using the material in protection sleeves. The sleeves are lightweight, pliable, black outside and olive drab inside, and 16 to 17 inches long. They are particularly recommended for workers who need protection against oils, most acids and alkalis.

Bethlehem Store Opened

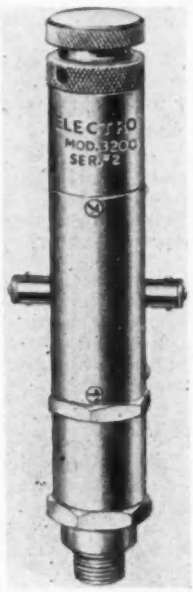
Bethlehem Supply Company has opened a store at McAllen, Texas. Personnel includes W. H. Abele, store manager and field representative; and M. R. Kennedy, field service representative. The store will be under the general supervision of J. P. Branch, district manager with headquarters at Corpus Christi, Texas.

Removing Ammonia

Cochrane Corporation, 17th Street and Allegheny Avenue, Philadelphia 32, Pennsylvania, has for distribution Reprint 39 on removal of ammonia from boiler feed water.

Pressuregraph
ELECTRO PRODUCTS LABORATORIES

Electro Products Laboratories, 549 West Randolph Street, Chicago 6, Illinois, announces a new product called the Pressuregraph.



Pressuregraph

This electronic device will indicate, in linear response on the screen of a cathode ray oscillograph, the pressure-time curve of any internal combustion engine, pump, airline, or any other enclosed pressure system where pressure measurements are desired. It measures either static or dynamic pressures, and is said to have been successfully applied to 2-cycle engines to show pressure-time-curve of main cylinder or crankcase.

In operation, the pick-up section of the instrument is inserted in the cylinder, chamber or airline to be pressure measured. The pick-up response is transmitted, after amplification, to the screen of a cathode ray oscillograph. Only one control is required, with one initial adjustment to compensate for temperature effects.

☆

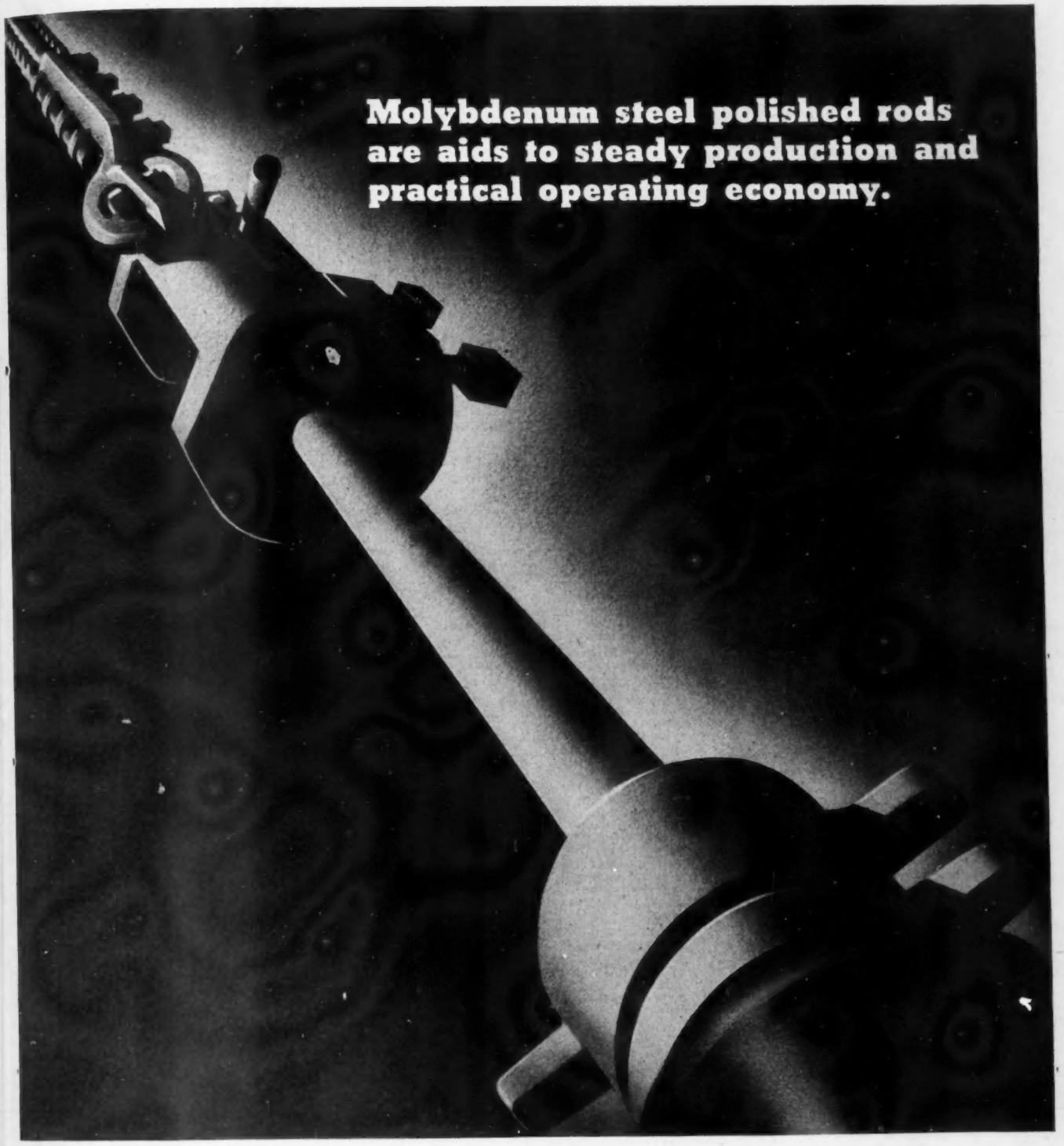
JOHN J. NEALE has been made Gulf Coast division sales manager of technical oilfield services for Lane-Wells Company, Los Angeles. Neale was district superintendent of the company's Louisiana operations for the past three years.

Lee J. Lobdell is superintendent of the newly-established Laurel district, with headquarters at Laurel, Mississippi. A new operating point has been established at Natchez, Mississippi, with F. E. Senyard as operator in charge. B. G. Dunlap succeeds Lobdell as subdistrict superintendent at Longview, Texas.

Other changes include: J. M. Henderson succeeding Neale as district superintendent at New Iberia; G. A. Harris succeeding Henderson as assistant district superintendent; V. E. Campbell from sales engineer, Houston district, to subdistrict superintendent at Houma, Louisiana; H. W. Greene to Lake Charles, Louisiana, as subdistrict superintendent.

J. Murray Walker has been transferred to Tulsa, Oklahoma, as division sales engineer, and S. W. McGaha brought into Oklahoma City as district superintendent and Charles B. Snodgrass into Salem, Illinois, as district superintendent.

W. B. PRINGLE has been named manager of the New York office of Caterpillar Tractor Company, Peoria, Illinois. He formerly was manager of the Berwick, Pennsylvnaia, office. Don E. Kneer succeeds Pringle at Berwick.



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Rex E. Galloup, Phone 6436, Lubbock, Texas

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TULSA, OKLAHOMA

FRANK P. RHAME was named president and general manager of The Lunkenheimer Company, Cincinnati, on March 13. Other officers named were Homer E. Lunken, first vice president and assistant general manger; Harry A. Burdorf, vice president, sales; Charles W. Burrage, secretary; Chester C. Isekeit, treasurer and controller.

Advertisers' Index

* Indicates detailed information on products and services included in 1943-1944 edition of Composite Catalog of Oil Field and Pipe-Line Equipment.

*Allied Chemical & Dye Corp. 59
*Alten's Foundry & Machine Works 96
American Association of Petroleum Geologists 96
*American Cable Division American Chain & Cable Co. II Cover
American Cyanamid & Chemical Corp. 77
*American Roller Bearing Co. 82
*American Sand-Banum Co. 89
*American Steel & Wire Co. 35
Baird Manufacturing Co. 91
Wm. M. Barret, Inc. 91
*The Barrett Division Allied Chemical & Dye Corp. 59
*Bethlehem Steel Co. 75
*Bowen Company of Texas 85
Brad Foote Gear Works 70
*Broderick & Bascom Rope Co. I Cover
*Cameron Iron Works, Inc. 64
*Climax Engineering Co. 47
Climax Molybdenum Co. 95
Columbia Steel Co. 35
Construction Machinery Co. 69
Continental Oil Co. 83
*Fred E. Cooper 15
*Fairbanks, Morse & Co. 11
First National Bank in Houston 87
Ft. Worth Laboratories 91
*Gardner-Denver Co. 2
*Gaso Pump & Burner Manufacturing Co. 39
*Gatke Corp. 93
General Motors Corp. 61
*Goodall Rubber Company of Texas 53
*Grant Oil Tool Co. 20
*Gray Tool Co. 45
*The Guiberson Corp. 5
Leland Hamner Co. 63
Harrison Equipment Co. 89
*Hercules Powder Co. 68
Houston Laboratories 91
Houston Lighting & Power Co. 18
*Hughes Tool Co. IV Cover
Hyatt Bearings Division General Motors Corp. 61
Hycar Chemical Co. 81
*International Harvester Co. 67
The International Nickel Co. 13
Interstate Drop Forge Co. 41
*Jones & Laughlin Steel Corp. 22
Jones & Laughlin Supply Co. 49
*Kerotest Manufacturing Co. 3
*Keuffel & Esser Co. 85
*Lamtex Equipment Corp. 63
Landis Machine Co. 14
*The Layne & Bowler Co. 73
Leyman Manufacturing Corp. 85
*Link-Belt Co. 1
The Lufkin Rule Co. 92
Day P. McNeel Co. 24
*Mideo Bailer Co. 88
*Minneapolis-Moline Power Implement Co. 86
*Mission Manufacturing Co. 36-37
Murphy Diesel Co. 80
Tom Niland Equipment Co. 91
*Oil City Brass Works 63
Oil Industry Mailing List Co. 91
*Orbit Valve Co. 96
*The Parkersburg Rig & Reel Co. 12
*Patterson-Ballagh Corp. 55
*Pelican Well Tool & Supply Co. 78
*Penberthy Injector Co. 62
Hotel Pittsburgher 85
*Rollway Bearing Co. 10
Rouse Manufacturing Co. 91
*SKF Industries, Inc. 8
The Second National Bank of Houston 6
Seismic Explorations, Inc. 43
Seismograph Service Corp. 16
R. H. Sheppard Co. 76
*Standco Brake Lining Co. 91
Sterling Packing & Gasket Co. 33
Texas Electric Steel Casting Co. 79
Texas Foundries 9
Texas Pipe & Supply Co. 84
*Thornhill-Craver Co. 91
Trading Post Section 90
*Tuboscope III Cover
United States Steel Corp. 35
Van der Horst Corporation of America 51
*Waukesha Motor Co. 4
*Westinghouse Electric & Manufacturing Co. 7
*Wilson Supply Co. 57

An A.A.P.G. Publication!

TECTONIC MAP of the UNITED STATES 1944

Prepared under the Direction of the Committee on Tectonics, Division of Geology and Geography, National Research Council.

Chester R. Longwell, Chairman, Philip B. King, Vice-Chairman.

Charles H. Behre, Walter H. Bucher, Eugene Callaghan, D. F. Hewett, G. Marshall Kay, Eleanora B. Knopf, A. I. Levorsen, T. S. Lovering, George R. Mansfield, Watson H. Monroe, J. T. Pardee, Ralph D. Reed, George W. Stose, W. T. Thom, Jr., A. C. Waters, Eldred D. Wilson, A. O. Woodford.

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